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Practical Bee Culture.

PURE FERTILIZATION CONTROLLABLE.—A HUNGARIAN PROCESS

The Bienenzeitung contains the following communication from Mr. Semlitsch, one of its most intelligent correspondents, as well as one of the most experienced practical apiarians in Germany.

Some time ago the Chevalier de Azula informed me that a Mr. John Dax, of Güns, in Hungary, employed a means of securing the fertilization of a queen bee, under his immediate supervision, by any drone he chose to select. He stated that Mr. Dax cut out a queen cell on the day before the young queen would mature, placed it in a queen cage, and let the queen emerge therein; then transferring her with a few workers to an appropriate case, introduced a drone and fertilization speedily followed.

Acting on this information, I made several experiments last spring, but failed in every instance. Then having occasion, early in autumn, to make an excursion to Penkafeld, in Hungary, I concluded to extend my jaunt nine leagues further and proceeded to Güns. I here found Mr. Dax, who received me very cordially and readily communicated much interesting information gathered by him in the course of forty years' experience in practical bee-culture—besides giving me an opportunity to examine a manuscript treatise prepared by him, embracing his observations and opinions, arranged under the head of 136 questions and answers, being literally a bee-keeper's catechism.

Of course the pure fertilization of queen bees, and the means of securing it, soon became the subject of our conversation; and he unreservedly communicated how he proceeded to accomplish that object. As he generously allowed me also to impart the information to others, I now proceed to do so for the benefit of bee-keepers generally.—The importance of the discovery, in case the process proves to be reliable, induces me to make it known at once, though I should have preferred to test it previously more thoroughly myself, under proper conditions. The few experiments which I could as yet make, failed, as it seemed to me, only because the weather was then so cold that I could not keep the embryo queens from becoming chilled in the cells; but that it is practicable to procure the fertilization of queens, by the method employed by Mr. Dax, using the requisite precautions, I regard as unquestionably true. I proceed to details.

For our purpose we need, first of all, a common cylindrical wire gauze queen cage, fastened securely to the middle of a piece of board $\frac{1}{4}$ inch thick, and having a $\frac{3}{4}$ inch hole through its centre. This board must be sufficiently large to cover the hole in the top of the hive. A second similar board serves to have a queen cell attached to its under side with melted wax, and is laid on the first mentioned board, with the queen cell passing through the $\frac{3}{4}$ inch hole—thus closing the queen cage. Next we need a tin plate six or seven inches square perforated with numerous holes so small that a worker bee cannot pass through. And finally we need a four-sided case of wire gauze or a glass cylinder, six inches wide and six or seven inches high, open at top and bottom, and having within on one side, three or four inches from the bottom, a wooden peg or spear on which a small piece of honey comb may be suspended. These are all the requisite materials.

When we are having queens reared, it is important that we should note the day on which the cells are sealed. On the second day thereafter cut out a queen cell, attach it by means of melted wax to the under side of the second board above described. Then inverting the board pass the cell through the $\frac{3}{4}$ inch hole of the first mentioned board, into the queen cage, so placing the board that the cell shall be freely suspended in the cage, with room all around and below, for the young queen to emerge when mature. With the second board then placed on the first, the queen cage is perfectly closed. Now open the hole in the top of the hive, and place the board on it, with the attached queen cage passing down into the hive as far as the board to which it is fastened will permit. Close all crevices tightly, and cover the whole with a piece of blanket doubled and securely fastened. By lifting the blanket and raising the upper board to which the queen cell is attached we may at any time ascertain whether the queen has emerged or not. On finding that she has left the cell, we wait four or five days longer, or more

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precisely, from after the third till the first fine, warm and favorable day that occurs, such as young queens themselves select for their bridal excursions. On such a day, we lift out the queen cage with all its adhering bees, cover the hole in the top of the hive with the perforated tin plate, and set the wire gauze case or glass cylinder on it; thrust into it the adhering bees from the queen cage, liberate the queen, let her pass down among the bees, and cover the top of the case or cylinder. There ought to be somewhat more than a hundred bees in the cluster. Should there not be so many, draw back the tin plate gently and let an additional number of workers pass up. Now suspend a piece of honey comb on the peg or spear, cover the case or cylinder, and place it in a dark chamber. At any time between eleven o'clock in the forenoon and three o'clock in the afternoon, a selected drone may be introduced, light partially admitted, and fertilization will soon follow. Should it not take place on the first day, the experiment must be repeated on the next, when it is almost sure to occur. Mr. Dax assures me that he had frequently used the process, and only on two or three occasions had he found it necessary to introduce a second drone, and was then invariably successful. "Make the trial," said he, "it will not fail."

Apart from the undoubted credibility of Mr. Dax, other strong reasons lead us to presume that a successful result would follow a properly made experiment. Why does not fertilization take place within the hive itself? Evidently because in the crowded condition of a colony it could not be effected without interference, leading to commotion which might endanger the life of the queen. This being so, natural instinct has provided that, for this purpose, the queen shall leave her hive. Even should the bee-keeper undertake to interpose in the ordinary manner, by catching, confining and removing the queen, she would still be filled with alarm, and all her efforts would be directed to effect her escape and return to her hive—excitement and anxiety dispelling every other passion or natural impulse. Whether a queen thus removed be liberated in a roomy chamber and permitted to fly among workers and selected drones, or allowed to fly in the open air, restrained only by a silken string, the desired result will rarely be attained. But by the method employed by Mr. Dax, the queen becomes neither alarmed nor excited, for she is born in a state of confinement; and when permitted to mingle with a limited number of workers, she feels herself free and companionable, yielding readily to her natural impulse to provide for the growth of the small colony. If now a mature drone be introduced, fertilization will almost certainly follow, because, from the small number of workers present, clustered too, for the most part on the inserted honey comb, no interference or disturbance need be apprehended. Such are the grounds which induce me confidently to expect a successful result.

But what is to be done when the hives have no opening at the top, or having one, have still a vacant space between it and the ranges of combs below? With hives of this kind I made my unsuccessful experiments. In these cases, I pushed the last two combs so far aside that the cage containing the queen cell could be inserted in the vacuum; and that the remainder of the space might not remain unoccupied, I cut out two additional queen cells, caged and inserted them in like manner. As the base board of each queen cage was three inches square, the three just filled out the width of the hive, which was nine inches. This, and the cold weather then prevalent, may have been the cause that the embryo queens did not hatch; they probably became chilled. They failed to emerge, and as fall pasturage was then still abundant, the workers built a comb to each cage and filled it with honey.

My second attempt was made with a queen cell in the top opening of a straw hive, which moreover contained a queen. The bees paid no attention to the cell thus placed overhead, and consequently nothing came of it. Next spring I shall prepare for the hives having a honey chamber in the top, a division board 1¼ inch thick, with a suitable centre hole, substituting it for the ordinary top division board, for the purpose of experiment. If I should then also separate the honey chamber by means of a glazed division frame, I may possibly be able to dispense with the wire gauze case or glass cylinder. But in such case the tin plate must have precisely the length of the common top division boards, and take the place of the division board with the central hole.

A. SEMLITSCH.

Straszgang, Nov. 11, 1869.

[Translated for the American Bee Journal. From the Bienenzeitung.]

Bees in Abyssinia.

The war waged by England against King Theodore attracted public attention in a high degree to that remarkable country, Abyssinia; but among bee-keepers few, even of those well informed of the interesting advances and improvements in bee-culture effected within a few years past, will have surmised that that country, described as so beautiful and surpassingly fertile, may possess peculiar interest for them. Yet Abyssinia is in truth the very Eldorado of the honey bee and her friends.

Old Bochar, genuine Frenchman as he was, years ago pointed out that country to my notice when he quoted from Lobo's "Travels in Abyssinia in 1728," a glowing account of the bees, the hives, and the honey there found; and, thus excited, I eagerly desired and sought for further information.

In that very unpretentious and thoroughly truthful little volume, "*Experience in Abyssinia*, from 1858 to 1868," by Thomas Waldmeier, published at Basil by C. F. Spittler, in 1869, I found this incidental remark—"Nearly every countryman keeps bees." This induced me to seek for further particulars. Waldmeier was educated at the Crishona, near Basil, and had been recommended to King Theodore as missionary-mechanic, by the Protestant bishop Goburt of Jerusalem. He occupied an important position

under King Theodore, and was highly instrumental in bringing the Abyssinian troubles to a favorable issue. He now resides at Beiruth, awaiting an opportunity to return safely to the country in which he suffered much and for which he feels a strong predilection. I applied to him for information respecting the bees found there and the kind of management there prevalent." He favored me with the following letter, which I desire to communicate to bee-keepers generally, through the columns of the Bienenzeitung.

He writes under date of March 5, 1870.—"There are two species of honey bees found in Abyssinia. The one is the *domestic* or small Egyptian bee; the other, the still more diminutive *wild* bee, somewhat resembling a large winged ant. The former abounds in the country, the latter is comparatively rare, not being cultivated. In general the *flora* of Abyssinia offers to the bees the most ample pasturage, and accordingly honey is abundant in that country. There are three honey harvests annually, and the bee-keeper calculates on obtaining about sixteen pounds of honey on each occasion, or forty-eight pounds a year from every *gaff* or colony. The first harvest occurs in November, the second in February, and the third in July—the honey differing according to the season. That obtained in November, immediately after the close of the rainy season, when pasturage is rich and ample, is bright-yellow, transparent, with an aromatic sweetish bitter taste. Peculiar sanative qualities are ascribed to this honey. That procured in February is dark brown and has a raw taste. Not much of it is eaten, as it is generally used for making wine. That obtained in July is yellowish or cream-colored, oftentimes snow-white, and is called virgin honey. Most of this is produced in the valleys and low grounds.

At harvesting, not much honey is left in the hives for the use or support of the bee. Usually all of it is taken, and the bees left to provide for themselves. The cream-colored or white honey, which speedily candies in earthen jars, is in part eaten and in part dissolved in water and used as a drink. It is also boiled with milk, and is then regarded as nutritious for the young folks. On the whole not much honey is eaten in Abyssinia, the greater part being used in the preparation of *wine* (*Petsh*), in the following manner: Take one part of honey to six parts of water, mix well, and add thereto ¼ part of the leaves of the *Gesho* tree (*Rhamnus pauciflora*) after having toasted them somewhat on a hot plate. Mix again, and expose the mass, in an earthen jug, to a moderate temperature. The *Gesho* leaves will speedily bring on fermentation, and in the course of eight days the saccharine matter of the honey will be converted into spirit, which indicate the *ripeness* of the wine, whereupon it is used as a drink. When well made its taste is somewhat like that of good cider. In Abyssinia none but the nobility are permitted to drink wine; but as Abyssinian pride converts every Abyssinian into a nobleman, the consumption of wine, in that country, is enormous. Some, whose interest it is to intoxicate their guests quickly, use Gerona or Zaste leaves instead of those of Gesho; but those leaves are evidently of a noxious quality, causing headache and vomiting among those who drink wine thus made. Wax is prepared only after the wine had become *ripe*, which is then passed through a filter or sieve whereby the wax is retained. It is then melted and made into tapers or candles, or sold for embalming the dead.

The *tame* or *domestic* bee is found everywhere in Abyssinia, though it seems to prefer districts elevated about 7,000 feet above the level of the sea. The hives are made by the countrymen themselves of narrow thin slices or strips of bamboo. They are cylindrical in shape, three feet long and fifteen or twenty inches in diameter, and closed at one end. These are coated inside with a plaster of cow dung, and when dry are ready for service. The bees are introduced in them in the usual manner, and left undisturbed till the time of harvest. The hives are never set in rows or groups, but in isolated positions around trees and rocks and on the roofs of houses. The supply of pasturage is very diversified, as vegetation is not only luxuriant but multifarious, though growing wild. In October, when the face of nature seems veiled in one mass of flowers, the wearisome monotonous yellow predominates as far as the eye can range. This is the color of the then blooming oil producing plants—overwhelming all other hues. Clover, rape, and the blossoms of fruit trees are abundant in season. Where the Euphorbeaceæ abound the honey gathered from the blossoms by the bees is of a poisonous quality

The *wild* or quite diminutive bee is entirely distinct from the *tame* or domestic. It is much smaller in size, and also differs in form, much resembling the ant. It builds its nest in the ground, at a depth of ten or twelve inches, leaving only a single opening or entrance, so narrow that not more than one bee can pass or repass at a time. Its comb is constructed like that of the common wasp. It produces a honey much in demand and highly prized. It is dark brown in color, very liquid, and has an acid, astringent, yet not unpleasant taste. It is considered a panacea, and used in cases of inflammation of the throat, croup, and scrofulous ailments. It acts as a mild purgative, strengthens the stomach, promotes digestion, and is thought to possess singular curative qualities. The best medicine which any Abyssinian physician can prepare for the sick is a compound of one part fifty year old butter and two parts of the wild bee's honey! It is called *Tassme*—which when well mixed, warmed, and drank by the patient re-establishes his health—such at least is the faith of the Abyssinian.

KAYSER, Pastor.

Nieder-Weisel, May, 1870.

Every colony which has a new queen should be watched, in order that the apiarian may be seasonably apprised of her loss, and take steps to supply another.

There is always some risk in making a very large colony, that they will build an excess of drone comb, if the season is very propitious for gathering honey.

On the Form of Cells.

MADE BY VARIOUS WASPS AND BY THE HONEY BEE.

By the Rev. Samuel Haughton, of Trinity College, Dublin.

The geometrical form affected by the cells of various kinds of wasps and bees has attracted the attention and called forth the speculations of naturalists and geometers from the earliest periods. By one class of writers the geometrical properties of these cells have been used as proofs, not so much of the skill and instinct of the insects, as of the wisdom and intelligence of the Creator; while by the opposite class of writers, these same geometrical properties of the cells are alleged as a sufficient cause for the production of the insects that make them, from the advantages which these forms of cells are supposed to possess over other forms—advantages said to be so important as to decide the battle of life in favor of the insects that adopt the geometrical plan of making their cells.

I have for a long time felt convinced that both parties in this controversy are in error, as men generally are when they attempt to speculate on the reasons for the existence of things; and that the properties of the cells are only the necessary consequence of their geometrical form, which form itself is the necessary consequence of mechanical conditions totally unconnected with design, and incapable of rendering an account of the origin of the insects that make the cells.

The geometrical cells of the wasps and bees that I have had an opportunity of examining, may be divided into three classes.

1st. Hexagonal cells formed by adjoining pyramidal figures, with slightly curved axes, not terminating in a point, but in a rounded extremity.

The British Tree wasp forms its pupa cells in this manner, and in consequence of the pyramidal form of the hexagonal cells, the comb opens out on the lower side, so as to present a larger surface than on the upper side.

2d. Hexagonal cells formed of adjoining prismatic figures, with rectilinear axis, terminated by a truntaced plane, at right angles to the axis of the prism.

These cells are found in wasps' nests from St. Lucia, in the West Indies, and at Graham's Town in South Africa, which were placed at my disposal for th s investigation by Mr. Robert J. Montgomery.

3d. Hexagonal cells formed of adjoining prismatic figures, with rectilinear axes, terminated by three faces of a rhombic dodecahedron; which three faces also form each one-third of the termination of a similar set of adjoining hexagonal prismatic cells, placed end to end behind the first set of prisms.—This double comb is produced by the well-known form of the cells of the honey bee.

All these varieties of cells may be accounted for, simply by the mechanical pressure of the insects against each other, during the formation of the cell. In consequence of the instinct that compels them to work with reference to a plane, and of the cylindrical form of the insects' bodies, the cells must be hexagons; and in consequence of the instinct that induces the bees to form double combs, the mutual pressure of their heads against each other compels the bottom of the cell to assume the form of a rhombic dodecahedron. If we could imagine spherical insects endowed with the instinct of working from a point and not a plane, their cells would cease to effect the forms of the hexagondal dodecahedron, and would imitate the totally different form of the pentagonal dodecahedron—instances of which may be seen in the bubbles produced in the froth of an organic solution, and in the shapes of the elementary cells of vegetables, equally restricted in their growth in every direction—and also in the pentagonal faces assumed by leaden bullets made to fill completely the inside of a hollow shell, and then discharged against a bank of earth or a wall, from a mortar.

On this subject I cannot do better than quote the words of Buffon, who was the first person that put forward a rational theory of the shape of the cells of bees. The opinions of older writers, especially of mathematicians, differ widely from those of Buffon, on this subject. The passage from which I quote may be found in his *Histoire Naturelle*, tom 4, page 99, &c. I here translate some of the most important passages bearing on this point.

"The famous Pappus, of Alexandria, in the Introduction to the Fifth Book of his Mathematical Collections, says:—'God has imparted to men, indeed, the best and most perfect knowledge of wisdom and discipline, and has assigned to some animals devoid of reason, a certain portion. To men therefore as making use of reason, He has permitted that they should do all things by reason and demonstration; but to other animals without reason, He has given the possession of what is useful and condusive to life, by a certain natural providence.'

"Any one may understand this to be so, as well in many other kinds of animals, and more especially in bees. For order, and a certain deference to those who rule in their republic, ambition moreover, and cleanliness, heap together an abundance of honey. But their foresight and economy concerning its conservation are much more admirable, for holding it for certain, as is just, that they carry back some portion of ambrosia from the gods to choice men, they pour it not rashly upon the ground, or into wood or into any other unformed and misshapen matter, but collecting from the sweetest flowers that grow on the earth, they form from them most excellent vases as a receptacle for honey (which the Greeks call κηρία and the Latins *favi*) all indeed equal, similar, and cohering among themselves, of the hexagon species. Now it is thus evident that they construct these by a certain geometrical foresight, for they consider it fit that all the figures should cohere together and have common sides, lest anything falling into the intervening spaces, should spoil and corrupt their work. Hence three rectilinear and ordinate figures can effect what is purposed—I mean ordinate figures which are equilateral

and equiangular, for ordinate and dissimilar figures did not please the bees themselves."

Now equilateral triangles, and squares, and hexagons, (neglecting other dissimilar figures filling spaces,) may be placed next each other, so as to have common sides—other ordinate figures cannot; for the space about the same point is filled, either by six equilateral triangles, or by four squares, or by three hexagons; but three pentagons are less than sufficient, and four are more than sufficient, to fill the space around the point; neither can three heptagons be established so as to fill the space around a point.

The same reasoning will apply much more to figures having a greater number of sides. There being, then, three figures which of themselves can fill up the space around a point, viz.: the triangle, the square, and the hexagon, the bees have wisely selected for their structure that which contains most angles, suspecting indeed that it could hold more honey than either of the others.

The bees, forsooth, know only what is useful to themselves, viz.: that the hexagon is greater than the square or triangle, and can hold more honey, an equal quantity of material being employed in the construction of each. But we, who profess to have more wisdom than the bees, will investigate something even more remarkable, viz: of three plane figures which are equilateral and equiangular, and have equal perimeters, that is always the greatest of all provided it be included in a perimeter equal to theirs.

In 1712, Maraldi published in the MEMOIRES DE L'ACADEMIE DES SCIENCES, Paris 1712, page 299, a remarkable paper, in which is investigated for the first time, the terminal planes of the bee's cell, which are now well known to be formed of the faces of the rhombic dodecahedron He appears to have believed the object of having lozenges of the same form, as terminating planes, was to enable bees to carry in their mind the idea of one geometrical form only, in addition to their original idea of the hexagon. The angles of the lozenge are found by observation to be 110° and 70°; and 109° 28′ and 70° 32′ by calculation. He gives also the following mean measurements of the cells:—in a foot long of comb there are 60 to 66 cells, about two lines for each cell, and the depth of the cell is five lines.

Reaumur appears to have been the first who introduces the fantastic idea of economy of wax as the motive cause of the peculiar shape of the terminating planes, and, not being a geometer, he obtained the assistance of König to calculate the angle of the lozenge which should give the least surface with a given volume. König determined this angle at 109° 26′, agreeing with Maraldi within two minutes.

Maclaurin published in the Philosophical Transactions, 1743, page 565, an elaborate geometrical paper on the subject, in which he proves that the tangent of the angle in question is the square root of 2, and that it is therefore equal to 109° 28′ 16″; and he computes the saving of wax as almost one-fourth part of the pains and expense of wax they bestow, above what was necessary for completing the parallelogram side of the cells.

L'Hullier, in 1781, published in the BERLIN MEMOIRS page 277, an elaborate discussion of the entire problem, in which he arrived at the following results, already found by Maclaurin's geometrical method.

a, That the economy of wax is less than one-fifth of what would make a flat base.

b, That the economy of wax referred to the total expenditure is $\frac{1}{71}$st, so that the bees can make 51 cells instead of 50, by the adoption of the rhombic dodecahedron.

He does not share in the enthusiasm of the naturalist, but maintains and proves that the mathematician could make cells of the same form as those of the bees, which instead of using only a *minimum* of wax, would use a minimum-minimorum, so that five cells could be made of less wax than that which now makes only four, instead of fifty-one out of fifty.

Notwithstanding this conclusive decision in favor of the mathematicians, the advocates of final cause, and those who maintain that economy of wax can create a new species, have both persisted in using the bee's cell in illustration of their respective theories, with a pertinacity that proves the persistent vitality of exploded theory.

In fact the whole question of the economy of wax, like other such questions, requires a thorough sifting. To my mind it is evident that economy of wax has nothing to do with the making of the bee's cells; but that this and other properties necessarily reside in the bee's cell, because they are inherent properties of the rhombic dodecahedron. The true cause of that shape is, the crowding together of the bees at work, jostling and elbowing each other, as was first shown by Buffon. From this crowding together they cannot help making cells with dihedial angles of 120° of the rhombic dodecahedron; and the economy of wax has nothing to do with the origen of the cells, but is a geometrical property of the figure named — *Annals of Natural History, Third Series, Vol. XI.*

[For the American Bee Journal.]

The Sting of the Honey Bee.

MR. EDITOR:—In the summer of 1868, at several different times, when stung by a bee, I noticed, that in extracting the sting a portion of it would remain in the wound; that the part remaining fixed in the flesh was much finer in size and sometimes fully as long as the portion removed, and it appeared also to be a tube pulled out of the main sting, much in the manner of the working of a telescope, and which I thought to be the form of its construction, particularly as I had read in several places that such was its working. This led me to give the bee sting a thorough examination recently, with a powerful microscope then in my possession. The result has proved to me several interesting facts, which I have never seen published any where, and thinking they might be interesting to the readers of your valuable journal, I have taken the liberty of detailing them and forwarding them to you.

The bee sting, in the first place, is not a per-

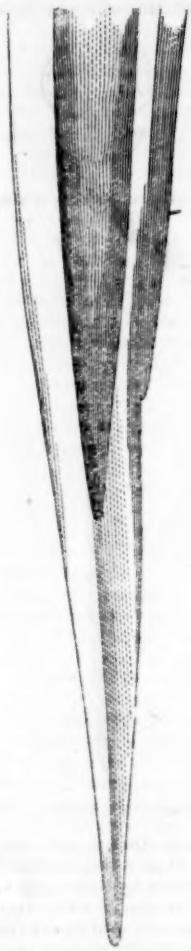
fect tube, nor does it work with a telescope motion, strictly speaking. It is a complex instrument, being composed of three distinct parts, of which the sheath forms one. These three parts join near the edges, and form a tube which, viewed sectionally, has the shape of a triangle, the angles being rounded off.

The sheath, near its point, is narrow, but grows wider towards its base, where it gradually embraces the remaining parts, thereby keeping them in place in their working. Near each edge

Bee sting magnified. In this position of the sting the barbs are not seen.

of the inner or hollow side of the sheath, runs a ridge which fits a corresponding groove in each of the other parts. Near its point, which is rounded rather bluntly, it is armed with two feeble sets of barbs, numbering as many as four in each set. The base of the sting or sheath is large, being broad and somewhat flattened, with an oblong hollow, which constitutes a receptacle for the poison just previous to injection in the wound.

The other two parts constitute the sting proper, and in a sectional view are semicircular, the upper edges being thicker than the lower ones, and squared to each other, one of the edges having a projection extending along the under or inner portion of it, thereby forming a rabbet along which the opposite part freely moves. The under or inner edge of each of these parts tapers down to extreme thinness, while near the tirmination of the edge, there runs a minute groove which corresponds with the ridge mentioned in the description of the sheath, and along which



Point of Bee sting highly magnified.

the parts move freely. Each of these parts proper tapers down to an exceedingly fine point. Near the point begin the barbs, which in some stings number as many as ten, extending along the sting nearly one-half its length, and are well defined.

The parts are of a horny consistency, of a deep red color, and transparent, they are also hollow along the greater portion of their length, intended perhaps to combine lightness and strength.

The two chief parts at the base of the sting

gradually assume a nearly round and tubular form, each terminating beyond the base of the sting within the body of the bee and has an arm attached to it at right angles which forms a part of the muscular mechanism by which their movement is effected.

Also, to each of the chief parts, and located in the cavity formed at the base of the sheath, is attached a plano-convex valve, the convexity of which is adapted to the inner side of this receptacle, and they occupy about one half of the space therein. When the sting is in action, each of

Sectional view of the parts of a Bee sting.

Bee sting magnified, showing the barbs.

the chief parts is thrust out and withdrawn, alternately; so that when working its way into a wound, the valves by their action force out the poison which fills the cavity, and which is received from a sac situated apart from the base of the sting. The poison readily passes along the tube (which is a continuation of the cavity) and finds its way into the wound with great facility, owing to the peculiar formation of the sting.

It may often happen that one or both of the chief parts of the sting are left in the wound, when the sheath is withdrawn, but are rarely perceived on account of their minuteness, the person stung congratulating himself at the same time that the sting has been extracted. I have had occasion to prove this fact repeatedly, in my own person and others. Very recently a bee stung me immediately under the left eyebrow. It was perhaps fifteen seconds before the sting was extracted, when I at once put it under the microscope and found that both of the chief parts were wanting, having been torn away near the base. They unquestionably were left in the flesh, which caused me additional pain and swelling. This peculiarity of the sting renders it a formidable weapon, and may perhaps account in some measure for those deaths from the sting of a bee, lately recorded as having occurred in this country. I certainly dread them more now

Point of Bee sting highly magnified, showing the barbs.

than before my investigation, though ordinarily we find no serious results ensue, owing no doubt to the fact that the substance of the sting, on account of its nature, is readily dissolved by the fluids of the body—consequently giving irritation as a foreign body for only a short time comparatively. The sting, when boiled in water, becomes tender and easily crushed.

When stung, a person should instantly extract the sting, should it be left by the bee in the flesh, as it continues its working motion for several seconds after being torn from the body of the bee, and thereby gradually buries itself so deep as generally to make it impossible to withdraw all of it.

J. R. Bledsoe.

Natchez, Miss.

[For the American Bee Journal.]

Novice,

AND THE MONTH OF JUNE, 1870.

DEAR BEE JOURNAL:—If we mistake not, it was George Washington, who, in laying down rules for his future conduct, deduced from past experience, said—"Never repeat or tell, *in the presence of strangers*, any fact, however true it may be, that seems very improbable."

Now, what we say here, Mr. Editor, is not to *strangers*, is it? We are all friends here in the dear *old* (as some one calls it) BEE JOURNAL, are we not, and nearly all acquaintances?

We sometimes wonder if any reader has ever followed Novice, as he often follows other correspondents, viz.: when we see something in one of their articles that makes us wish we knew better *just what kind of persons they were*. Take, for instance, the old back numbers of the Journal and read their articles in regular order, as they wrote them. How many of them we have got acquainted with in that way! Should we make inquiry in the neighborhood where they live, we feel as if we should not know them any better. The man stands not before you, like the figures in a stereoscope. Thus, for example, we call to mind a few of those whom we have followed in in that manner—Alley, Bickford, Conkling, Dadant, Gallup, Grimm, Price, Thomas, Townley, Truesdell, and a host of others, who, we only wish would write often enough that we might recall them familiarly. How we should like to take them by the hand—all of them. Even if we do not always think just alike, we like them all the better for that. They have given us a helping hand all round; and we feel sure that they will rejoice at our success as fervently as we should at theirs.

Well, how many of our friends have thought that Novice was enthusiastic, and built air castles? Some of those here at home, often tell us so, *on bees especially*, like this for instance. We proposed ordering jars and labels for 2,000 lbs. of honey. Said they, "better put it at 1000, Novice, and not be disappointed!"

"But we had 1000 lbs. from twenty hives in 1868."

"That was an extreme, and an unusually good season."

"But we are going to make them all good. We had 203 pounds from one hive; our hives are all strong now; and 46 times 203 are ——!"

"There! there! Novice all over! How about their all dying in the spring of 1869?"

"But we 'licked' on wintering too, in the spring of 1870."

"We had not learned that," &c., &c.

We got ready for 2,000 pounds; but by the middle of June, the jars were all full, and we sent in haste for as many more; and as the bees would not stop bringing in, we borrowed all the neighbors' tin wash boilers, which the bees filled in a jiffy. We borrowed more, but the honey came in torrents. We again ordered as many more jars. Monday came, and the women could not wash, because *we* had theirs boiler, and the bottles did not come, though the honey still did. "Would the bees ever stop?" asked our better half, in alarm; "would so much honey ever sell?" Even Novice himself opened his mouth, in dismay, but it soon came level again, in a few minutes talking wildly about scouring out the cistern and filling that too, if the Italians were willing.

We have now (July 6th,) put in jars over five thousand (5,000) pounds of honey, *by actual weight*, and basswood is just at its height in bloom! One hive has given us 258 lbs. and has just lost its queen, or tried to replace her; so we fear it will not be our best, and it is the only one we weighed. It gave us 44 lbs. in three days, on one occasion.

Natural swarming, for the first time, got rather the better of us. Removing all queen cells, and all honey, and giving empty frames in the centre of the hive, would not do; and one stock swarmed while we had the hive open, removing the honey. We thought we would for once try natural swarming a little, since such swarms are cracked up so as working better, &c. But if we don't take the matter in hand hereafter and have it when we wish and how we wish, it will be because we can't. Here is our complaint.

Our first natural ("born fool," we should like to say) swarm, we put in Dr. Conklin's diamond hive. It staid half a day (but didn't work "airy spec,") and then went out again. As we had no frames of brood that size, we thought we would try them again. As soon as the queen was uncaged, they were off once more. Next, we cut out some brood, in all stages, and filled a frame; half a day more, and "off again!"

Of course we always keep the queen's wings clipped; but the last time they left their queen and joined a small swarm of black bees at a neighbor's, and when we hived them for him, at his request, and told him how it was, he said, no, "his bees were yellow too;"—so went half a bushel of our best Italians. How much good would Quinby's queen yard do, in such a case?

Another swarm acted in the same way, and we paid the sum of five dollars for a small third swarm of black bees, that we might carry our Italians home. Still another came out four times; and we could only keep them by caging the queen nearly a week.—After we became disgusted with this state of things, we did it our way. That is, we shook off all the bees and the queen from an American hive (that could not hold them all) into an empty Langstroth; on the old stand, gave them one frame of brood, as we had treated all the *natural* swarms, and they built more comb in two days than the natural did in a week. All were shaded. The old American hive had a new location of course, and young bees enough to care for the brood. In any kind of swarming, we always furnish *queen cells* or *brood* from choice stock, selected with a view to give gentle bees and large honey producers. Queen cells are laid on the top of the frames, where they can be readily inspected, and all others are carefully cut out when the honey is removed by the melextractor, every two or three days. Sometimes they are obstinate, but we insist on compliance with our wishes.

All drone brood is sliced off as soon as sealed,

so that we have scarcely any drones in our apiary.

We enclose a report given in our county paper.

As ever yours,

NOVICE.

[From the Medina (Ohio) Gazette.]

Scientific Bee Culture.

EDITOR GAZETTE:—In answer to a thousand and one (almost) inquiries we submit a few statements concerning our Italian Bees for this season.

About three years ago many readers of the *Gazette* may remember we gave the result of an experiment to ascertain the quantity of honey that a strong colony of bees could gather when they had *no comb to build.*

The result then given was 30 lbs. in two days; an amount that seemed almost incredible, when the size and power of the little insect was taken into consideration.

Two years ago hearing that a machine had been devised in Germany, for removing the honey from the comb by centrifugal force, we caught the idea and made a machine at an expense of about ten dollars, that would take every drop of honey from the hive of a large colony in less than ten minutes, without the slightest injury to the comb, *even when full of brood in all stages,* and further than that, that the bee would go to work with unusual energy to refill them

If a swarm can gather 15 lbs. in a day it is evident that with the old-fashioned method where but two, or at most, three times that quanity is furnished as surplus in a season, that a large part of their time is spent idly, which we think is usually the case, but not so much so in our apiary as the following figures will show.

The best yield per stock per day, we have, previous to this year, by the melextractor for a series of days was 9 lbs. per day. June 25th, 26th and 27th our best stock gave us this year, 43 *pounds,* (carefully weighed by the steelyards.)

We commenced removing honey, June 1st, having then 46 stock of Italians and Hybrids, mostly but not all strong, and have now taken altogether 5,000 pounds.

Many have come to us for advice preparatory to going into the "bee business." To all such, we will say that we have no secrets that are not free and public property, yet, without speaking discouragingly, we know of no business where a little neglect at the proper time or a want of knowledge of the proper thing to be done, would work such a disaster as in the bee business.

Again, the successful bee-keeper, on the plan we follow, must make up his mind not to mind any amount of stings, (even a dozen an hour,) and to take them all gently and uncomplainingly.

To those who are really willing to go into the subject and study it thoroughly in all its details, (and you might as well undertake to build steam engines successfully without study as to keep bees in any number without this,) we would recommend first and foremost the AMERICAN BEE JOURNAL, published at Washington, D. C., $2 per year.

We are asked a'most every day "how we raise queens and make swarms artificially."

Now we could tell you all in one breath, "how to clean and repair watches," much easier than the above, and in the majority of cases could teach it about as successfully.

However, we are willing to give our hand to those who are really in earnest, and there are oceans of white clover without bees enough to visit them, and the more bees that are kept the more clover there will be. Isn't that jolly! Now we know why there is so much clover of late within a circuit of three miles around Medina. "Root's Italian bees of course."

Yes, they will cross and have crossed with the common bees for four or five miles around. And it would be a pleasant thought for us to think that we had been instrumental in improving the honey crop of Medina county, even if it did not all go into our pocket.

Twenty dollars for one original Italian Queen five years ago was not so bad a venture after all. She has given us health as well as honey, and may her progeny never number less.

A. I. ROOT.

[For the American Bee Journal.]

A visit to E. Gallup, and what I saw there.

There being a Sunday-school association, composed of several counties of Northern Iowa, to meet at Osage on the 21st and 22d of June, I being a delegate, found myself at Orchard about 8 o'clock on the morning of the 22d, within one and a half miles of Mr. Gallup's residence. I thought I could spend part of the day with him, with both pleasure and profit, as no doubt most bee-keepers could—unless it be the Professor, who sells quarter-blood Italian queens. So I left the train and took it afoot through the hot sand; and when I came to a house that stood in a grove surrounded with bee-hives, I concluded that was Gallup's, in which I was surely not mistaken. After finishing a fine breakfast which the good woman prepared for me, I went on the look out for Gallup himself, and at last succeeded in finding the real Simon Pure, shingling on the south side of a house where it was so hot that he talked of taking the nails and pumping water on them to keep them from burning his fingers.

After a few preliminaries (and very few too) he invited me to a seat on the ridge pole of the house, where I could catch a little of the cool breeze that we always have on our prairies. We did put in full time, talking of bees, bee-hives and introducing queens, until about 11 o'clock when we came down into the yard. He opened several of his hives, showed me his queens, some from Mr. Alley, some from Mrs. Tupper, and others, and at last his imported queen sent him this spring. I remarked to him that this latter was no lighter or handsomer than other queens he had shown me, or those queens I had in my own yard, which I knew were hybrid. His reply was that the climate of Italy gave them a much darker appearance than those raised in this country.

The next thing was to open one of Alley's new style Langstroth movable comb hives. He had in it a fine stock of three-banded bees, hard at work, having been put in only a few days before. I must here say that it is a splendid looking hive as it sets in the yard and I thought it would be more in place in the house, as it would make a splendid western bureau.

Then he opened one of Dr. Conklin's Diamond Frame hives, this also had a good stock of Italians, hard at work. They had also been in only a few days, but I could not see that they had built comb faster or straighter than those in the Langstroth frames, whether deep or shallow. I must say that I do not like the appearance of the hive as it sets in the yard. It looks as though it had been u, set and wanted squaring up with the world. I do not think you could pile them three deep in the cellar very well.

I will not describe Gallup's hive which he uses most, as he has done so himself several times, and is often called on to do so through the Journal. He calls it the Langstroth hive. The frames run the same way, only they are shorter and deeper than those of the shallow form of the Langstroth hive. I think it is a good hive in his hands, or rather in a good bee-keeper's hands. But only think of a hive you have to pull in front over the movable bottom board to let in air and for the bees to enter, except only a half inch round hole through the front. This is used for the bees to enter, and through it they have the hive, and when one comes in loaded and misses this entrance, he drops down and goes in at the bottom. I fear that this hive in the hands of most bee-keepers (class No. 3, I guess he calls them) who seldom examine their hives, will find too much air and a few worms in this style of hive. I told Gallup that when he visits me next fall, to attend our County Fair, I would convince him that I had the best hive—which is the Langstroth deep frame two story hive, with frames above, or boxes, as made by the "National Bee-Hive Company" at St Charles, Kane county, Illinois, M. M. Balbridge, Secretary. This hive is so simple, the upper story may be removed and the same cover fits the top of the hive, the size of frames is the same above as below, they may be nicely packed in a cellar, examined with ease, and you have matters entirely under your control. Besides making a beautiful appearance in the apiary, if you keep them well painted, as you should do, they will last a lifetime.

We were now called to drive out, but as soon as we were well seated, a stand of bees informed us that they were intending to swarm. So out we went, and Gallup was somewhat disappointed as he did not expect that hive to swarm. This is about all you can tell as to when bees will swarm, unless you open the hives every few days. I have had bees to swarm and go back to their hive again; I would then open the hive, destroy the queen cells and give them plenty of room, and the next day out they would come again, be hived all right, and go to work—leaving the old stock to raise another queen from eggs after their departure. And all this, when the queen that did leave was one that I raised late last season, young and prolific.

But I will return to our swarm that is in the air. The queen did not come out, and the bees returned to their home stand without clustering. Gallup called it a foul, I called it a fizzle.

The next exhibition was his Peabody honey-flinger, as he called it. It was the first I ever saw, and as he considers it the best in use, I promised to treat myself with one, as I think it a great improvement in bee-culture.

The next thing was one of Davis' queen nurseries. This he had not yet tried, but would in a few days set it a going.

We were soon seated in his carriage, with his family, on our way to Osage to attend to Sunday-school Association riding over one of the finest countries the sun ever shone upon—and this can be said of all Iowa, especially the valley of the Red Cedar. Here, nearly every quarter section of land is improved; while there is heavy timber on the river, and beautiful groves scattered over the prairies.

At about 5 o'clock the train from the North reminds me that I must turn my steps homeward, and if ever any one felt satisfied with his day's work, though it had been hot, dusty, and dry one, it was your correspondent.

My bees are doing well. Most of my Italians have given me two or three swarms, and are now at work in boxes. I have some thirty stocks; am a beginner; commenced with three stands in 1868, and have raised three generations of queens this year. I will only add, should you, or any of the correspondents of the Journal, be as near me as I was to Gallup's, call by all means and I will try to entertain you, if I do not keep a hotel.

Thus ends the account of my visit to Gallup's and what I saw there.

H. K. SWETT.

Waverley, Iowa, July 5, 1870.

[For the American Bee Journal.]

The Looking-glass Theory played out!

On page 252, Vol. 5, A. B Journal, Ignoramus tell us of decamping bees being stopped by the rays of a looking-glass being flashed among them.

Just after reading his article I saw another in one of my *scientific* agricultural journals, that tells us by the aid of a looking-glass we can see everything in a deep well, cistern, &c, and that the looking-glass will keep the birds out of the cherry trees, &c., &c. Well, sir, as seeing is believing, I procured a *piece* of a looking-glass, went to the well, and threw the reflection down *to* the *water*, but no further. I could not see a thing below the surface of the water. But to try the thing further, I went out to my apiary, took my station by a favorite cherry-tree full of *birds*, but almost minus the cherries. I darted the bright reflection of the looking-glass in their eyes, and what do you think the result was? They eat the fruit faster. Well, I thought, here are two failures, I wish I had an opportunity to try an absconding swarm of bees. Just then I heard the buzzing of a swarm starting. I looked at all the hives in the direction from whence the

buzzing sound came, but saw no swarm issuing, though the sound increased. In a moment after I saw a swarm leaving the top of a large apple-tree. Now for my glass, thought I; no use of your trying to go away, for I will stop you with the looking-glass. So I ran before them with my piece of glass, and flashed and flashed; but they went higher and faster. When they had gone about three hundred yards they seemed to be offended at the flashing glass, rose above the tall forest trees, and soon left me in the distance, to consider how foolish I was to believe enough of the looking-glass theory even to try it. I was rather a skeptic before, but now with me the looking-glass theory is entirely *played out*. I guess if Mr. Ignoramus will question his neighbor closely, he will tell him about the time the bees turned back to the bush, scattered, circled, and seemed to be confused, they perhaps were, for their queen was probably as nigh tired out flying as he was running, and alighted on the bush. After the bees had gone on a hundred yards or more, they discovered her absence, and returned, to find her on the bush, and stopped there also to rest awhile. Had he sat down by the bush and rested also until next morning, it is more than likely they would have started again, an i went on regardless of his glass. Or will Ignoramus say there is more virtue in a whole glass, than in a *piece* of one? My piece of glass was four by five inches square.

I once knew of a swarm to turn back some two hundred yards and settle on the top of a tall oak that stood in a deep hollow they had just crossed—*without* the aid of a glass. The man following them said he hallooed and made so much noise that they went to the *top* of the tall tree to get rid of his noise!

H. NESBIT.

Cynthiana, Ky., June 25, 1870.

[For the American Bee Journal.]

On Wintering Bees.

MR. EDITOR:—Your correspondent, Novice No. 2, inquires as to the best mode of wintering bees; giving his own experiments, at the same time. Having tried almost all the methods recommended by the writers of the day, I have adopted one of my own contriving; and have found the following mode, in my opinion, the best, and to be, so far, entirely satisfactory in its result.

My cellar, under my kitchen, was prepared by passing a tin pipe 1½ inches in diameter (see *diagram*) from near the bottom of the cellar up through the floor into my cooking stove pipe; so that when there was a fire in the stove, there was a constant draft of air from the bottom of the cellar discharging into the stove pipe and off through the chimney. The cellar was not a dry one, and was also somewhat damp from recent build, not having yet become dry in the walls. Into this cellar I put my bees on the 15th of November, leaving the entrances of the hives open, and also slightly opening the tops of each hive, but not giving more, on an average, than an inch square of space for upward ventilation. In the Langstroth hive I simply slipped a sixpenny nail under the two corners of the honey board in front. The hives were set three deep in a row around the sides of the cellar. Here they remained until the 17th of February. The sun was shining brightly; the air was still; and the thermometer at 50° at ten A. M. I set them all out upon their old stands, and let them have a day of jollification; which they improved with a hearty good will.—After they had quieted down that evening they were all returned to the cellar, where they remained till the bees in the neighborhood began to gather pollen plentifully, (which was on March 30th,) when they were again set out, to remain for the season, on the same stands they had occupied severally in February.

The result was, 1st, there was not a particle of mouldy comb; 2d, not more than half a teacupful of bees dead in any one hive during the entire winter; 3d, the hives appeared to be nearly as heavy as in the fall, when they were put in; 4th, each colony was exceedingly strong in numbers, and young brood was abundant.

The philosophy of my success I think to be this: 1st, The air in my cellar was changed almost entirely, if not quite, every day, by means of the draft in the ventilating tube; 2d, the coldest air, being on the floor of the cellar, was that which was drawn out; 3d, the carbonic acid gas exhaled from the lungs and body of the bees, is heavier than common air, and of course sinks to the bottom of the cellar, where it would remain in a strata of poisoned air all the winter, no matter how many tubes, as ventilators, were fixed in the wall at the ceiling or top of the cellar. The warmer air, and the purest indeed, would pass out at these holes at top, and the cold and poisoned air would remain on the floor. The supply of air was from the store-room above, slightly warmed, and of course always dry; and was drawn into the cellar to supply the vacuum caused by the draft in the tin pipe.

Foul air and the retention of the *fæces* are probably the great causes of dysentery during the winter. Avoid these, and bees will pass the winter in as healthy a state as in summer. If the cellar is of a temperature as low as 32°, the bees will consume large quantities of food, and, having no chance to fly out, will retain their fæces too long; and dysentery will compel them to daub the frames and hive with their excretions. Being in a freezing temperature, thousands will perish, not being able to find their way back to the cluster. On the other hand, the temperature should not be too high. If it is, the bees will become uneasy, and more honey will be consumed; and being confined too long, under such circumstances, might become diseased. About 40° to 45° would be my standard. If the air is supplied as above, it will not vary much from this point.

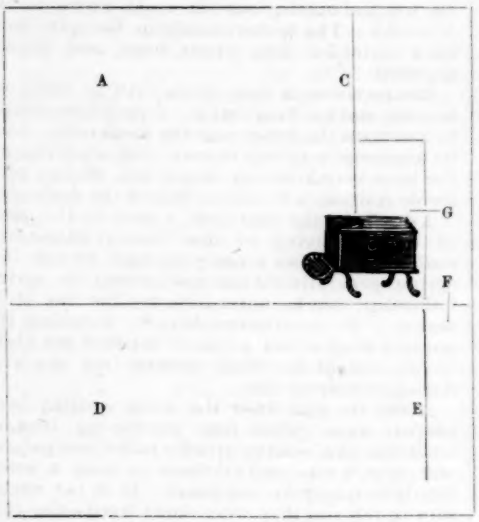
In special depositories, built above ground, bees do not generally suffer so much from poisoned air, as there are usually ventilators near the ground, through which the carbonic acid gas flows out. But here the great danger is from being too irregular in temperature, sometimes being so low as 22°, and at others so high as 60°, as reported by one correspondent. This will be

modified much by the number of colonies wintered in one room. Through the months of December, January, and February, let the temperature be kept as near 45° as possible. After this let the temperature run up to 50°, and keep it this high to promote early breeding. When set out stop all the crevices but the entrance and the bees will be in the best possible condition for early swarming and an abundant harvest of surplus honey.

E. L. BRIGGS.

Mount Pleasant, Henry Co., Iowa.

Accompaning the above was an illustrative diagram, showing the arrangement for ventilation, somewhat as below.



A The kitchen.
D The cellar.
B The stove.
C The stove-pipe.
E The ventilating tube.
F Air passage in kitchen floor.
G Damper.

It will be seen by this diagram that the tin tube is entirely out of the way; and that the draft can be shut off at any time by a damper in the tube. The air being let in at F, is gradually diffused, and sinks to the floor of the cellar and is drawn through the tube, until the whole is changed.

A cellar ventilated in this way will remain as pure and free from any bad smell as any room in the house.

In districts where buckwheat is extensively cultivated, bees will sometimes swarm when it comes into blossom; and the hives therefore need watching or examining at that period.

Buckwheat swarms have been known to issue some years as late as the middle of September.

[For the American Bee Journal.]

How bees secure pollen to their thighs!

A correspondent in a recent number of the BEE JOURNAL gives the manner in which bees remove pollen from their thighs and deposit it in their cells. I never knew until this season, how they collected it and secured it to their thighs, and as others may not have observed the process, I will record it.

In feeding some flour this spring, my attention was attracted by the large number of bees hovering on wings, just over it and a few inches above it, almost stationary, now and then alighting for an instant; while some would merely touch the flour, and rise again, without stopping. Upon close examination I saw that their feet were going in as rapid motion as their wings, and that they were engaged in securing the flour to their thighs. They take up the flour or pollen with their fore feet, rise on wing, and with a rapid motion of all their legs, convey it and secure it to the receptacle on their hind legs, while flying. In gathering pollen from flowers, they collect all they can with their mouth and fore feet, and while passing to another flower and hovering over it for an instant, convey it to their baskets and secure it there. The peculiar noise or humming made while securing the pollen, we do not hear when gathering honey alone.

Mathematicians tell us of the great wisdom and ingenuity manifested in the construction of the cells of the honey combs, so as to use the greatest economy in space with the greatest possible strength, and now we see in this wonderful insect the wise provision of the great Creator for the economy of time. No time is lost by having to stop within the flower to secure the golden-colored treasure, but it is secured on wing while passing in search of more.

T. SMITH.

[For the American Bee Journal.]

The Thomas Hive.

MR. EDITOR:—We should like to have *our say* about which we think the best hive—its advantages and disadvantages. Taking everything into consideration, we regard the Thomas hive as the best of any we have seen.

The advantages are:—

1st. It is of the best shape to secure the greatest amount of heat for wintering bees, and for rearing brood in the spring.

2d. The combs can be removed, examined, and placed back, inside of five minutes; and with the least jarring or disturbing of any hive we ever opened; there being no empty space between the ends of the frames for the bees to fill with wax.

3d. It is so constructed that in moving the hive or combs, the frames are always in their proper place.

4th. It may be opened and closed without crushing a bee.

5th. It can be made with side doors a foot or more square, and back door ten inches square.

6th. In one minute you can have a circulation of air passing through every part of the hive; or in the same time you can allow as little as you wish.

7th. It has a swinging bottom board, which enables the apiarian to clean the hive of dead bees and of filth, without removing hive or combs.

8th. There is a passage through the bottom board covered with wire cloth, through which the bees receive air when shut in by the apiarian or snow.

9th. The frames can be handled with ease by the ends, which project 1¼ inches from the side of the comb, instead of taking hold of the frame among the bees.

10th. It contains the strongest frame we have seen.

11th. It cannot be surpassed for storing honey.

12th. It has comb frame stops, which hold the frames in their places and prevent the bees filling between with wax.

13th. It has two revolving bands, which gives the apiarian access to the ends of the frames, and when turned down form an alighting board for the bees and a short passage to the surplus honey boxes.

14th. It has a cover which carries the water to the sides of the hive.

15th. It does not gather dampness on the bottom board, as it touches the ground only on the ends of the side board.

16th. The bottom board slants to the front, the hive being vertical, enabling the carrying out of dead bees, aiding them to repel robbers, carry off moisture, and prevent rain from entering the hive.

17th. There are no openings in winter through which mice may get in.

18th. One, two or four boxes may be used.

19th. It presents a beautiful appearance in an apiary. Placed as ours are, in rows north and south, and east and west, they look like a village.

The disadvantages are:—

1st. It costs more than many others. First cost here $3.50.

2d. We have to set the boxes on the frames, instead of using Langstroth's honey board and air chamber.

3d. The improvements are worse than useless to one who will not properly use them.

PALMER BROS.

New Boston, Ill.

[For the American Bee Journal.]

Letter from Tennessee.

A few years after Tennessee was admitted as a State in the Union, emigration set in in earnest to the western country—a land akin to the one the Israelites were seeking—"flowing with milk and honey." The cane afforded pasturage for cattle during the whole year, and the forests abounding in bee-trees. Most of the settlers in this (Rutherford) county, were from North Carolina and Virginia. At particular seasons of the year baits were set up and the bee-trees marked—an expert finding several bee-trees in a day. From twenty-five to fifty pounds of nice honey, was generally taken from each, and the bees frequently left to take care of themselves. The more thrifty and economical hunters would secure the swarms, and carry them home in *gums* previously prepared.

Hollow oak, elm, and cedar trees were felled, sawed in pieces from two to two and a half feet long, and the inside smoothed with what the old people call a round shave. One inch holes were bored about midway the gum, and a round stick passed through. The top was covered with bark of the red or black oak, the bottom left open, and three or four inverted v's (A A A) cut in its edge, and it was then placed on a flat stone in the back yard. Robbing or taking honey every year in the spring, was attended to by removing the top and cutting out the comb down to the × sticks. The broken combs in the gum were then sprinkled with wheat, bran, and the top replaced.

Bee-moths were then (from 1810 to 1825) unknown, and for years after. I have been unable to ascertain the exact year the moth miller made its appearance in this county. But when it came the bees were killed by thousands, offering only feeble resistance to the inroads of the destroyer.

As early as the year 1830, a man by the name of Jenkins, living in this county, discovered that the queen bee accompanying a swarm last spring, generally led the first swarm the spring following; but he never observed her the third season. He ascertained this by notching the queen's wing so much that it impeded her flight having caught her while passing into the hive during swarming time.

About the year 1840, the more wealthy bee-keepers were gulled into purchasing bureau-wheatfan-like looking articles called bee-palaces and enough was paid for them to keep a small family in honey for ten years. It is not necessary to tell you they were short lived—the concerns lasting longer than the bees that were in them. People were so "burnt" with them, and such a quantity of them were scattered through this country that that generation had to nearly pass away, before improved hives of any description or pattern whatever could be introduced.

Within a few years past several patent hives have made their appearance in our midst; and some interest is being manifest in an improvement on the old gum and procuring better bees.

The movable frame (Langstroth) hives have been much used here for three seasons past, and with intelligent bee-keepers give satisfaction; although we nave never experienced with that hive those marvellous returns in honey claimed by some persons interested in other hives.

We winter our bees in the open air. No foul brood has made its appearance in our county. Wishing your journal success and more patronage, I am yours, &c.

WM. P. HENDERSON.

Murfreesboro', Tenn., June 27, 1870.

Early in October all the hives in an apiary should be carefully examined, to see if they are in a suitable condition for wintering.

[For the American Bee Journal.]

Respect for the Sabbath.

MR. EDITOR:—On page twenty-four of the July number Mr. J. L. Peabody says he is sorry for Novice's "repeated misfortunes," and thinks that if he takes Argo's hint as to the day he writes on, &c.

Now we do recollect Mr. Argo's writing as though *some one* had written on *Sunday*, but that he would not. But as we have *never written an article* on the Sabbath, we could not see that it applied to us at all. If we have ever *dated* an article so that it fell on Sunday, we beg pardon for *the blunder*, as that is all it was.

In regard to our repeated misfortunes, we know of none other, unless it is a ". lissful ignorance" of the fact that we were a "misfortunit indiwiddle" at all.

It is true, our bees did die (but we have got lots more), and our earthly treasures did burn up (and they were fully insured, except the Quinby hive); but if that was all the direct consequence of *reading* the Bee Journal on Sunday, we are really afraid we shall burn up more. Alas, wretched NOVICE.

[For the American Bee Journal.]

From the "Old North State."

I have been trying, Mr. Editor, to get you a list of subscribers for your invaluable Journal, but, as yet, without success. This is attributable to two causes, viz.: the great scarcity of money, and the inveterate "old fogyism" of our bee-keepers.

To *rob a hive*, thus—knock off the top, and take out half the contents, young bees and all, about "corn-tasseling time," is the general practice; and for fall management, fire and brimstone to all except a few, for seed!

I have tried to induce a desire to improve in bee-culture, by every means in my power. I have started some few to using box-hives with upper chamber for surplus honey, and three are using movable frames. I have been ridiculed—had "bee on the brain, &c.," but have kept steadily on, and hope yet to convince many that there is profit as well as pleasure in adopting an improved method.

I regret exceedingly that I have not a "Hruschka." I feel the necessity for it, and am nearly disgusted with glass boxes, by my experience this season; as in nearly every instance my boxes have brood in them, making them unfit for sale, and causing them to be longer on the hive. Can this be prevented?

Several of my stocks have, at a time when they were gathering plenty of honey, dragged out and *sucked dry* nearly all of the drone brood. Now I want to know why? Are there certain conditions when a stock requires *animal food*, and does the queen, like the ostrich, lay an excess of eggs to supply this expected demand? Again, I have this season observed several instances of comb-building *across* the frames, and, in the boxes a partial disregard to the guide combs; and apparently in every case, the comb is built in a *north and south* line. Now, is this simply a coincidence? If it is universal, how simple it will be to have all the frames *on that line*, and thus accommodate their instinct to our wishes in dictating combs straight.

I value my Journal and do not wish to be without it at all; but I lend and lend again, and keep every copy going—hoping thereby to do good, and *you* know *one* reason why. If you will admit to your columns a correspondent from this *Bee*-nighted region, I will endeavor to write only such matter as I believe ought to interest the bee fraternity.

Congratulating you upon the improved appearance and interesting contents of the July No., and hoping that you may *never weary in well-doing* I am, yours, &c., MAT. HEWS.

Oxford, N. C., July 6, 1870.

[For the American Bee Journal.]

Permanence of Qualities and Purity of Italian Bees.

It is well known that a seemingly pure Italian queen, which breeds only three-yellow-ringed workers will yet breed young queens, some of which are very dark, while others are quite yellow. And some of these young queens will breed beautiful workers, and others very dark, or even black ones altogether. This latter is always set down to the fact of her having mated with a black drone; while it is, or may often be, owing to her impurity inherited from her mother.

In all first crosses between varieties, the hybrid offspring generally appears to be half and half of both parents. But the offspring of hybrids scarcely ever shows such equal shares of parental traits. One inherits almost exclusively on one side and another upon the other. A half blooded Morgan mare, bred even to a pure Morgan sire, will rarely ever show the three-fourth peculiarities of the Morgan stock, but her colt may go back to either side—showing the curb or the Morgan, without any rule upon which reliance can be placed.

Five generations, at least, are necessary to fix any variety of hybrid, so that the mother shall certainly reproduce herself, in her offspring.

The *Chester White* and the *Magee* hogs are not new species, but varieties which have become fixed by continual selection of the best, through at least five generations. Some claim that twice this number is necessary. But this much is sure by the concurrence of all breeders of fine stock, that none are admitted to the rank of thoroughbred, unless the blood has flowed pure for at least this number of generations, without the least cross.

The prices which are now demanded for Italian queens, greatly vary with the different breeders; and if we mistake not those that sell cheap queens, are the ones that get the custom of bee raisers generally. Some sell as low as $2.50, and boast of four hundred orders unfulfilled at a time.

Well, let us see where our Italian stock is bound soon to end, with the present manner of

breeding. Suppose forty Morgan mares, and as many stallions, all pure, were allowed to mingle promiscuously, would any one think of taking a colt at haphazard from their offspring, from which to breed the highest qualities? No. For although all would be Morgan horses, many would be very poor Morgans indeed, considering the Morgan as the standard—though any one of them would be better than the Mustang. Out of the forty he would not select more than one or two, that would in all points meet his ideas of excellence as a breeder.

Apply this to the Italian honey bee. Our importations have been haphazard from Italy. All have been better than the common black bee. But considering the Italian as a standard, they have ranged from very good to very poor. Promiscuous breeding is certain to run back into a degenerate variety; while constant *selection* just as certainly improves even the best breed.

It has been demonstrated that some of the breeders in the United States have raised more beautiful yellow queens and workers, than those originally brought from Italy. This has resulted from selections continually made from the best of the undoubtedly pure. Dzierzon, in Germany, it is said, has produced a variety with four yellow bands—being a gain of one band, by constant improvement by selection of the highest colored. In my own apiary I have raised one queen that bred many workers which showed four yellow bands when filled with honey.*

By breeding from this queen constantly, and closely watching the progeny of her daughters, one might now and then be selected which would give this marking constantly; and so on through successive generations, until such variety would become fixed. But color is not the only quality needed. Size, fertility, disposition, and the honey gathering instinct particularly, are all to be regarded as requisites in improvement.

Now, shall the queen raising brotherhood send out $2.50 queens over the land, until the public shall conclude that all the advantage which one variety has over the other, is that the one has some yellow rings, which the other has not. For one, I answer No! Let the sharper do as he pleases; but let men of integrity sell only at fair prices, and send out such alone as are really superior.

From my own experience I can pronounce no queen fit to breed from, or even pure until after I have seen the color of her queen-bred daughters. If all the daughters show a uniform color, they are pure up to the mother's standard, and the variety is fixed, or she may be pronounced *thoroughbred*. If the colors vary, however, from dark to bright yellow, she is tinged somewhere in her recent ancestry, with black blood, though she may have been bred even in Italy. The man who is raising queens for sale should be held responsible by those who buy of his stock, to breed only from his very best of queens. Otherwise let him be held as ranking only with the quack and the mere pretender generally. He may not have very superior stock at first; but his stock will always grow better and better, with each year he continues in the business. Four tested queens are as many as any breeder can raise from one nucleus in a season. If one out of four should prove unfit for sale, or a hybrid, then not less than from $8 to $10 each could pay him for such tested queens.

Then let the price be kept at paying figures; but send out no queens for breeding purposes, but such as are fully up to the standard of excellence, and those who delight in handling this wonderful insect, may not only have the most beautiful, but the gentlest, the largest, the most fertile, and most industrious honey bees known to the world.

E. L. Briggs.

Mount Pleasant, Iowa, July 7, 1870.

*As we understand it, Dzierzon's bees show the fourth yellow band only under similar circumstances—that is only when well-filled with honey.—Ed.

[For the American Bee Journal.]

The Queen Yard Tested.

Quinby's device called a queen yard, will keep a queen inside of it, just so long as she does not try to *crawl* out. I caught two queens on the *out side of the yard* when the bees were swarming. They were of the black variety, old queens heavy with eggs, and having their wings clipped, I put one back and had the mortification to see her crawl out from the underside of the tin, a few minutes after. I have good reason to believe I lost two or three others in that way; after which I watched them while swarming, caught the queen, and returned her when the bees return. Perhaps most queens will return without trying to crawl out; but it will not do very well for a rule, according to my experience.

E. S. Fowler.

Bartlett, Ohio.

[For the American Bee Journal.]

Economizing in Management.

Modern writers I believe agree in the fact that bees consume from sixteen to twenty pounds of honey in making one pound of comb. But how much honey that pound of comb will hold after being made, I do not know; though we will suppose it will hold from sixteen to twenty pounds. Now suppose you take from a hive a box containing twenty pounds of honey in the comb, you have robbed them of material equivalent to forty pounds—namely twenty pounds of honey, and comb for the production of which twenty pounds more of honey were used, and for replacing which, by the bees, the same quantity of honey would again be required. This nice box of honey, it is very true, comes on the table in very aristocratic style; but if the reader will show me a man with a stomach that can digest beeswax, I will in turn show him one that can digest a saw-mill. Call on your druggist if you please, and ask him for the strongest acid in his establishment—say *nitric acid* (aqua fortis), and if he has a small vial with a glass stopple, he will give it to you in that, to keep it from getting on your clothing or hands. But if he has none such, he will draw upon a

piece of wax, to make a stopple that is acid proof. Good material to test the digestive organ of man. But why not abandon the box, and receive from the main hive double the amount of honey by saving the comb from destruction and returning it to the hives, besides preventing an open space above the bees. You thereby also obviate trouble and avoid the disinclination of the bees to enter the boxes and work. In all my experience I am certain I never saw a colony that filled a top box, without first damaging the prospects of the queen, by filling the comb in the main hive so full of honey that no empty cells remained for her to deposit eggs in. In some cases I have known hives to remain with a box on top the entire summer and fall, without being filled, though the main hive was full and there was for months, plenty of honey to be gathered from the flowers, and during the early part of summer the bees clustered in crowds on the outside of the hive. Bee-keepers generally can testify that such cases are numerous.

This is an age of progress, and the watchword of the day is *onward* and *upward*. Reader, you that are using the common box or gum, what kind of hive, think you, did the bees occupy five thousand years ago—say the first swarm that ever occupied one? I suppose it was some old log gum or box hive, with the combs fastened to the sides. You have advanced perhaps in everything else; tell me how far you have advanced in apicultural science. The first improvement in bee-hives that ever materially assisted me in bee-culture, is of very modern date. The time is past that any man that understands his business, will make a specialty of bee-keeping, without the movable frames. The sting of the bee has caused such terror and fear that man in all ages groped his way in chains and darkness till recently, so far as a correct knowledge of the culture of this insect is concerned.

In the one item of an attempted adaptation of the hive to the nature, wants and instincts of the bee, thousands of patented hives have failed and been an injury to the bee. The entire domicile must be in one box, without division boards or combined boxes, either side by side or on top of each other. The surplus honey must be taken from the main hive, and the empty combs returned in a manner to keep the empty cells below—thereby adhering to the golden rule in bee-culture: "*Always keep your colonies strong in numbers, so that when plenty of honey is produced by the flowers, you have plenty of bees to gather it.*"

As we have before stated, the mere emptying the combs of their honey, and replacing them where they were before, does the queen no good so far as depositing eggs is concerned. Instinct teaches her to deposit her eggs in the lower part of the hive, and prompts the bees to store their honey above. It is evident that if the combs containing honey and brood, are emptied and returned to their original place the brood will occupy the same position that it did before, and no increased facility is given to the queen to increase her colony. There is besides the questionable propriety of emptying combs with brood in what I call the *milky* state, (from one to four days after hatching.) Will it not be chilled in its rapid revolutions in the emptying machine? Then there is also the opening up of a larger space above the bees. This open space, created by emptying the honey and returning the comb, will, it is true, not always damage the prosperity of the hive to the extent if the combs had been altogether removed. Still, the liquid being extracted, an empty space results. If, however, the honey harvest continues only a short time after the extraction, the bees will refill the cells. But if so, and the honey is extracted again, here comes the vacuum above the bees once more. Why not arrange your combs in frames combined one above the other, and thereby obviate the necessity of revolving the brood?

J. W SEAY.

Monroe, Iowa.

[For the American Bee Journal.]

"Tanging."

The author of "*Tom Brown at Oxford*," in that elegantly written and somewhat popular work, gives some beautiful pen sketches of rural scenery and the rustic inhabitants of Old England. In portraying the character of one David Johnson, tailor and constable of Engebourn parish, who "kept the King's peace and made garments of all kinds for a livelihood," but, like many of us readers of the AMERICAN BEE JOURNAL also, "was addicted for his pleasure and solace to the keeping of bees," the learned author discourses as follows:—

"The constable's bees inhabited a row of hives in the narrow strip of garden which ran away at the back of the cottage. Now David loved gossip well, and considered it a part of his duty, as constable, to be well up in all events and rumors which happened or arose within his liberties. But he loved his bees better than gossip, and as he was now in hourly expectation that they would be swarming was walking, as has been said, in his summer house, that he might be on hand at the critical moment. The rough table on which he was seated commanded a view of the hives; his big scissors and some shred of velveteen lay near him on the table; also the street-door key and an old shovel, of which the uses will appear presently. * * * * * * In the midst of which thoughts he had forgotten all about his bees, when suddenly a great humming arose, followed by a rush through the air like the passing of an express train, which recalled him to himself. He jumped from the table, casting aside the coat and seizing the key and shovel, hurried out into the garden, beating the two together with all his might.

"The process in question, known in country phrase as '*tanging*,' is founded upon the belief that the bees will not settle unless under the influence of this peculiar music; and the constable, holding faithfully to the popular belief, rushed down his garden '*tanging*' as though his life depended upon it, in the hope that the soothing sound would induce the swarm to settle at once on his own apple-trees.

"Is '*tanging*' a superstition or not? People learned in bees ought to know, but I never happened to meet any one who had considered the

question. It is curious how such belief or superstitions fix themselves in the popular mind of a country side, and are held by the wise and the simple alike. David, the constable, was a most sensible and open-minded man of his time and class, but Kemble or Akerman, or other learned Anglo-Saxon scholars would have vainly explained to him that '*tang*' is but the old word for to *hold* and that the object of '*tanging*' is not to lure the bees with sweet music of key and shovel, but to give notice to the neighbors that they have swarmed, and that the owner of the maternal hive means *to hold* on to his right to the emigrants. David would have listened to the lecture with pity, and have retained unshaken belief in his music."

Are there not bee-keepers in this our country, day, and generation, both of "the wise and the simple," who cling to this "superstition" that there is something in the "sweet music" of ringing of bells and clatter of tin pans that will cause the bees to settle; and who yet can give no good reason for entertaining such belief? Will not some one of our "learned in bees" give the origin, reason, &c., of this common practice.

THADDEUS SMITH.

Pelee Island, Ontario.

[For the American Bee Journal.]

Improvements in Bee-keeping.

Agriculture, arts and science have progressed with amazing strides within the recollection of the older and even middle-aged men of the present day. The nineteenth century is remarkable for its improvements. The application of steam power, the construction of railroads, the numerous canals, steamships and boats, the telegraph wires stretched through the land and laid in mid-ocean, together with the innumerable machines to facilitate labor in all her varied callings, evidence and illustrate these facts.

The business of the apiarian has likewise made advances by the improvement of the home of the bees, and the facilities afforded them for storing a large amount of surplus honey in good shape for market. Within the present century the writer has seen the following progress.

1. Hives with one single apartment, and the honey for use secured by the destruction of the bees. A portion of the honey in the whitest combs was saved in the comb for use. The balance strained, and the comb converted to wax.

2. An improvement was made upon this system, substituting a wooden box for the straw hive, and placing one, two, or four boxes on the top of hive, with corresponding apertures through the top of the hive and bottom of the boxes, for the passage of the bees. This gave facilities for securing a part of the honey in good shape, to preserve for use or to convey to market.

3. A third improvement has been, by an increase of surplus box room. The arrangement of the boxes in this improvement, has been in three ways:

First, by placing the boxes upon each side of the breeding and wintering apartment; with corresponding apertures between the central apartment and the boxes. The boxes of an aggregate capacity of from 75 to 100 lbs.

Second. A second arrangement has been placing two tiers of boxes upon the top of the hive, one tier standing on the other, with corresponding apertures in the entrances from the hive and bottoms of the lower tier of boxes and also between the top of the lower and bottom of upper tier. By the hive being made long and the box room may equal the first deep from 75 to 100 lbs.

Third. The third improvement is, placing the surplus boxes upon both sides and top of the central or breeding apartment, occupying the positions where the bees would store their surplus honey had the whole been one room. Brood in the centre, and stores upon the top and sides of the brood.

In 1860, I commenced my experiments in bee-keeping. I constructed my hives upon this principle, endeavoring to make improvements which resulted in the Farmers Hive, patented Sept. 2, 1862. Subsequent improvements were introduced in the Eureka hive, patented July 2, 1867. Of this hive I have given a description with illustrations in a former number of the "AMERICAN BEE JOURNAL."

4. Another improvement has been made, of considerable importance. I now refer to the introduction of bars, fixed or movable, and movable comb frames. Either movable bars with side guides, or movable comb frames, are considered a very great convenience, almost a necessity, for artificial swarming, and for the exchange of queens. Aside from these changes, which I regard as improvements, there have been many others, such as the introduction of devices to give security against the ravages of the moth, to facilitate the operations of the bee-keeper in the prosecution of his business, and to secure success. These devices may, some of them, be valuable; while the advantages of others may exist only in the imagination or professions of enthusiastic or interested parties. Every man should examine and judge of specific changes, claimed to be improvements, for himself, and adopt or reject them from the deliberate exercise of his own judgment.

The introduction of surplus boxes I consider one of the most important of these improvements, as it secures the honey in its best shape for preservation, for use and for market.

A great amount of surplus room in this shape I regard as a great improvement, as it secures a much larger amount of surplus honey, than a smaller number of boxes can. From all my experiments thus far, I prefer the hive with surplus room in small boxes of capacity of 200 lbs. susceptible of an increase to 250 lbs. if needed, to one with boxes of larger capacity. The bees in such a hive, effectually shaded and secured from the heat of the sun, will not be likely to swarm, if the boxes were placed on at the commencement of the season. An Italian colony, with a prolific queen, will generally fill all the surplus boxes.

In 1868, I had eight hives in a bee-house in which they were effectually shaded. Only one of the eight gave a swarm. Six were Italian

colonies, and two natives. Neither of them swarmed, except one of the natives, upon which all the boxes were not placed until they had commenced preparations for swarming.

I observe a communication in the December issue of your Journal, from Rev. A. C. Manwell, Whitewater, Wisconsin, giving an account of his trial of the Eureka hive, in which the product of one colony of Italians was two new swarms and 165 lbs. of surplus honey in the boxes. Had they not swarmed, they would probably have stored more than 200 lbs. of surplus. This report of Mr. Manwell goes to confirm the great importance of ample box room for surplus. I will give further views in some future numbers of your Journal. Should any one of your readers wish further information, I will send it on receiving their address and stamp cover to postage.

JASPER HAZEN.

Albany, N. Y.

[For the American Bee Journal.]

How to make Glass Surplus Honey Boxes.

MR. EDITOR :—In my early experience in bee-keeping, I endeavored to construct glass boxes for surplus honey, in the manner suggested by MR. Quinby ; but, owing to the variable thickness of glass, and the difficulty of cutting the pieces to exactly the right size, I found that to construct a neat box in that way, required so much time and labor, that I was constrained to abandon the method.

I then tried paper fastenings, using no wood, except for tops and bottoms. This I found to answer well, and made a beautiful box. The only difficulty was to hold the glass in the proper position until the fastenings were applied. This difficulty I finally obviated by the following means : My boxes are six by six inches, and five inches high ; get out a block of soft, light wood, two and a half or three inches thick and six inches square, (nailing two or more pieces of the inner plank together, letting the grain cross, until the proper thickness is obtained, will answer as well,) get out also a square piece of plank, about three-fourths of an inch thick and eight or nine inches square, which, after sawing out of each corner a block two inches square, is to be nailed centrally to the blocks first described, the corners of which will project over the space left by removing the blocks from the corners. (The thin piece last described is to form the base of the block.) Now make a mortice or hole in the base board, on each side and about three-sixteenths of an inch from the blocks. In these insert a substantial peg or standard, with a shoulder on the outside, to hold it firmly, leaving space enough between the standard and the central block to receive the thickest glass without jamming. Make a few thick wedges, about two inches long, have your glass cut in pieces five by six inches ; place one piece on each side of the block, the lower edge resting on the base board ; insert a wedge between each standard and the glass, to hold the latter against the block. Slide the glass along until the corners are as near true as possible, (a slight opening or projection will not materially injure it.) You have now the form of your box complete. Have some strong paper (colored can be used, if desired,) cut into strips about three-fourths of an inch wide. Make a paste by dissolving two ounces of glue in a pint of water ; add a teacupful of flour well stirred with water and free from lumps ; boil until as thick as can conveniently be applied with a brush ; cut your strips of paper into lengths of five inches, apply paste, and place one centrally on each corner of the box, and with a piece of cloth press until the paper is applied smoothly. (The corners of the base board being removed, there is nothing under the corners of the box to interfere with your applying the strips of paper.) The lumber for the tops and bottoms should be of light material, and as thin as possible—about the thickness of veneering is best. Each piece (top and bottom) should be one-eighth of an inch wider and longer than the inside measurement of the box. If the boxes are 6 by 6, the tops and bottoms should be $6\frac{1}{8}$ by $6\frac{1}{8}$. Place the top on the box, use a strip of paper wider, if necessary, than for the corners ; apply it around the top, turn it down over the wood, remove the wedges, and with the thumbs under the base board, and two fingers of each hand, pressing two opposite sides of the box against the block ; invert it ; lift out the block when the paste is somewhat dry ; put on the bottom and fasten it in the same manner, and your box is completed.—It is best to have a number of blocks, so that they can be used alternately ; and thus allow the paste to become dry, before it is necessary to remove the block from the box. There should also be strips $\frac{1}{2}$ by $\frac{1}{2}$ or $\frac{3}{4}$ of an inch, nailed across the grain, on the bottom side of the base board, to prevent its warping, and to elevate it slightly for convenience in raising to invert, when the block is to be removed.

These boxes I have used for ten or twelve years. I have sent thousands of them to market, and have never yet found the paper deficient in strength. Indeed, I have had boxes to fall and the glass fractured in many pieces, and yet the fastenings failed to give way. By using gilt or other ornamental paper, and by properly combining complementary colors, they can be made of the most attractive appearance ; and in addition to this, they can be made with the greatest ease and rapidity. I have often made one hundred per day, including the cutting of the glass. A lady, or even a girl of a dozen years, can make them with great facility. I can confidently recommend all who use glass boxes, to try these, as it will cost nothing more than an hour's work to prepare the block. You may fail to get them to stand just right, the first few trials, if you use but one block ; but "try again," and you will soon wonder you ever failed at all.

I will now give you a plan for boring holes in hives or crown boards, for placing surplus honey boxes over. In the first place, I take it for granted that most of your readers use boxes with both tops and bottoms—open bottom boxes being unsuitable for transportation. It is very inconvenient to be obliged to bore more than one hole in each box, as it is some trouble to get them so

that they will correspond with those in the hive or crown board. And my experience has been that, by using one sufficiently large (two inches) the combs would be extended down through it into the hive; besides the liability to have brood in the surplus boxes by the queen entering them. To obviate this, with a two-inch centre bit, bore one-fourth of an inch deep in your hive or crown board, at the point at which you wish to place a box; then with a one-inch bit, bore four holes at equal distance from each other entirely through the board and around the circumference of the large one, allowing the bit to cut into the circumference of the latter sufficient to allow one or more bees to pass. When the box (which is to have a two-inch hole through its bottom), is placed in position, it will cover the one-inch holes, but the bees will pass from them into the shallow two-inch excavation, and thence into the box. This arrangement will prevent the extension of combs into the hive, and yet afford the bees all needful facilities for entering the boxes; and I have yet to find the first queen in boxes placed over holes thus arranged. Of course there is to be a two-inch hole through the bottom of the honey box, which is placed centrally over the shallow one in the top of the hive. Those who have faith in the 5-32 of an inch arrangement, can bore the two inch hole to that depth, for excluding the queen; but I can assure them that it is unnecessary.

Now, in conclusion, I hope that none of our gentlemen of the patent right persuasion will find anything herein contained that meditates against any of their privileges, either civil, social, or religious. Perhaps these suggestions are not new, but as I have seen no allusion to boxes made in this way, I hope the piece may be of service to some who find it difficult to make neat boxes, in which to have their honey stored in the most attractive form.

I. M. WORDEN.

Mobile, Ala.,

P. S.—If any prefer boxes without bottoms, they can be made in the same way, by using a strip of paper 1½ inches long for each corner, and applying it horizontally, allowing one-half of its width to project over the edge of the glass, then turning it over and pressing it down smooth on the inside of the box. Where the distance to be transported is short or by water, such boxes will be sufficiently secure; and when filled, they may be inverted and covered with glass cut the proper size.—I. M. W.

[For the American Bee Journal.]

Part of my Experience.

MR. EDITOR:—As Novice says, I must write you some account of my experience—my reverses and success in the bee business, which I think the most peculiar business of all connected with rural life. When I commenced I had no idea that it required so much study; but I would not give it up now on any account, for I can make more money out of my bees, than from anything else on the farm.

Last fall I put in to winter forty stands in movable comb hives; and on the first of May, I had seventeen left. The most peculiar thing was, I had one or two stands from which I did not take any honey, and they were the first to die; and nearly all that gave me only from thirty to fifty pounds died also; while those that gave me from seventy-five to one hundred and seventeen pounds came out all right, and are very strong now. Was it the quantity of honey retained by my bees that caused their death, or was it something else?

I procured thirty-six colonies in old box hives, in the winter at a distance of from three to six miles from my home; and I lost fourteen of them. They appeared to die from the same disease or cause that destroyed those in the movable comb hives. One bee-keeper living ten miles from here, lost fifty out of eighty stocks. More bees have died around here than I have ever known before.

Bees are doing very poorly here this year. We have no swarms, and not very much honey. It has not rained here in ninety-five days. I have lived in Illinois twenty-four years, and never saw such a dry time in all that period.

R. MILLER.

Rochelle, Illinois, July 4, 1870.

[For the American Bee Journal.]

Trouble among Bees.

Having been a reader of your valuable Journal for some time, I cannot well do without it. I would like to contribute something occasionally to the large stock of useful information with which its pages are filled, and hope to do so at some future time; but at present I wish to draw still more from the experience of others.

I suppose there are some bees in this neighborhood that have the foul-brood, but being an entire stranger to the disease (except from description) I hesitated long in the decision. It is not as rapid nor as fatal in its development as I expected. Are there different degrees, or is there a milder form of the disease? It seems to me a more particular description of the *first symptoms*, by which an *entire novice* in this disease could detect it, would be of much benefit to all. The frame hives are largely used in this vicinity. I commenced operating on the disease after Quinby's plan, by taking away the comb, and putting the bees in a new hive without comb. They commenced to build comb nicely, and filled it with eggs. After a day or two I gave them some good comb clear of disease. All went on swimmingly until the time for the young bees to come forth, when I discovered that they were being dragged out, in all stages, many of them minus wings or legs, &c., much the same as when a swarm is troubled with worms, or has had the brood killed by sudden cool weather. I examined the colony this morning, and found the bees cutting the brood comb all in pieces in their vain endeavors to extricate the young from the cells. The latter were also doing their best to get out—active and lively. Those of sufficient age had the caps of

their cells removed, and in some cases the rest of the comb mostly cut away, and still they were unable to extricate themselves, being evidently entangled in the cocoons. The loss of legs and wings appears to be the result of the older bees trying to help them. There were no worms in the hive, and the swarm is rather a weak one.*

I hardly think this the effect of foul-brood, but am not sure. I have seen isolated a single young bee dragged out of the hive in a similar condition, but could usually find more or less worms at work inside. But here the entire brood appeared to be in the same condition. Will not some *sage Beeist*, if any such there be, give through the Journal such explanation as they can; and also something further on foul-brood?

I fear this article is too long; but should you deem it worth insertion, I will in my next try to give you a history of my own case of foul-brood. Some of the readers may think I ought to have done so first; but this case seemed most prominent.

Since writing the above, the July number of the Journal has come to hand. In it Mr. John M. Price has an article on prolific and hardy queens, which accords with my experience very closely. Some ten years since I attempted artificial swarming, mostly after Mr. Langstroth's plan of forced queens, but could not succeed to my satisfaction in raising good queens. Mr. Price's plan may work better, I have opposed artificial swarming for the above reason.

R. B MERRITT.

Battle Creek, Michigan.

* This is certainly not a case of foul-brood, for in that the brood perishes in the cells a ter it is capped, none issuing therefrom, or being capable of making any effort to do so. The dead larva speedily decomposes and becomes putrid, being converted into a dark brownish, viscid, fetid mass which if undisturbed, gradually dries up in the cell. There are no "first symptoms" by which the disease in its incipiency can be detected, though, to an experienced eye, its existence is betrayed early, by a peculiar hue and appearance which the capping of the cells assumes.—*Ed.*

[For the American Bee Journal.]

Price's Sectional and Casket Bee Hive.

MR. EDITOR, and bee-keepers in general, I bring to your notice my improvement in bee-hives, which is used either in the horizontal or angling position. In this hive I have overcome all the objections to the angling position of the frames—such as the impossibility of getting straight combs in frames hung in that position, without each alternate frame being filled with comb. In this hive I have secured a warm compact breeding apartment, "movable" for large outside cases—allowing it to be wintered on its summer stand, or removed from the case to a bee-house, cellar or other repository. I have also secured the advantages of movable partitions, by using my glass honey cells—a set on each side of the sectional hive. By the removal of a cell from either side, the sections can be moved from each other, thus securing great facility and ease of handling the combs and management of the bees. I have also secured, by the use of my comb-bars, all the advantages of a shallow chamber, as a passage way for the bees over the combs in winter. And by the use of my wide top and narrow raised bottom sections, all danger of killing or maiming of the queen or bees is removed—a most troublesome and vexatious peculiarity of the square frame, from tipping, and thrice enhanced if the frames touch or lay on the bottom of the hive. It is simple and easily made in all its parts, without any complicated contrivances, thereby securing immunity from the ravages of the moth worm. As it overcomes all the imperfections of and objections to the horizontal or angling position of the combs, it will suit all tastes and preferences of position; and being perfect in itself as an inner hive, it allows of the use of all good, tight, large cases or packing boxes from the stores, which can be had cheap—thereby saving the cost of their special manufacture. Anybody who can use a saw, square or hammer, and drive a nail, can make them.

This is the only bee-hive invented that will answer, as such, in all climates; and that has simple yet efficient means for safely wintering, breeding or stimulating bees, and has all the requisites of a complete hive for the successful and profitable management of bees. The invention consists of a hive made of sections, consisting of four slats or bars attached at the corners in rectangular form, two of which are wider than the others and provided at the inside with slats for the comb bars. The said sections being confined in a rack or casket, and laid on a platform having a deep angular groove, in which the hive is laid on one corner, and may be turned from time to time, as may be required. The hive so constructed is designed to be wrapped in cold weather with canvass; and the whole is enclosed in an exterior case. The hive may be laid flat on the side, on a suitable support, if preferred, from time to time, as it is changed in position for stimulating the bees. To secure straight combs, remove the platform from the outside case and lay the casket and sectional hive flat on the bottom of the case, covering the entrance with tin or other suitable covering, (while the hive is in this position,) with a fly hole in it.

By means of this improved hive I am enabled to preserve the bees in cold weather, by wrapping the canvass cover around them, much better than can be done by the hives now in use.

My patent embraces—

1. The combination of the hive composed of the casket and internal sections as described in my specification, and the V shaped base adapted for turning the hive and supporting it in the angular position.

2. The internal sections composed of two wide bars, tapering at the top; two narrow bars; and the projecting comb bar.

JOHN M. PRICE.

Buffalo Grove, Iowa.

The spring of 870 has not been a good one for making maple sugar. It is believed that the quantity made in Vermont this year, will but little exceed half the usual crop.

THE AMERICAN BEE JOURNAL.

Washington, August, 1870.

☞ Several communications already in type are unavoidably crowded out; and others were received too late for this number of the Journal.

☞ The article on controlling the fertilization of the queen bee, translated for this number of the Journal, will of course arrest the attention of those engaged in breeding queens. The process is claimed to be reliable, and when properly employed always successful. We trust it may be promptly tested in various quarters, and the result of the experiments communicated for publication.

To make the cylindrical queen cage required, take a piece of board three-sixteenths of an inch thick and with a brace bit, cut out a circular disc one and three-quarter inch in diameter. Now take a piece of wire gauze one and a half inches broad and six inches long, pass it around the periphery of the disc and fasten it thereto with a small tack driven into its edge through the overlapping portion of the gauze, and also at three more equidistant points on the periphery. Then, gently compressing the thus formed cylinder between thumb and finger, so as to diminish its diameter slightly at the open end, secure it by passing a piece of wire through the overlap and twisting the ends together. This completes the cage which is substantially the same as the Kleine queen cage, now generally used in Germany for confining queens on the comb.

☞ We really cannot consent to devote more of our space to the controversy which sprung up in our columns between two of our bee-keeping friends. Both have repeatedly had their *say*, and a continuation of statement and counter-statement would be alike uninteresting and unprofitable. The whole trouble obviously grew out of the mistake of an official, with which neither party had any concern or responsibility. We think if they will good-humoredly review the case they will become satisfied that enough, and more than enough, has already been said. Mistakes and misunderstandings should not be allowed to produce ill-feelings and estrangement.

Whence Came our Honey Bees?

That our common honey bees are of foreign origin is universally admitted; but it is still a matter of dispute whence they came, or when they were introduced; though it is generally supposed that they were brought from England. Those in the Eastern States may have been thence derived; but we doubt whether those in the Middle States came from the same quarter.

In a pamphlet republished in the "Historical Magazine," Vol. VI., September, 1862, page 268, entitled "Good Order Established" in Pennsylvania and New Jersey, in America: by Thomas Budd, originally printed in the year 1685, occurs the following passage, referring to those then colonies:

"Bees are found by the experience of several person that keep them, to thrive very well."

Hence it is obvious that bees must have been kept in Pennsylvania and New Jersey, long enough prior to the close of 1685, to make the term "experience" applicable to those who kept them. It is also well-known that bees were abundant, even in the forests of Pennsylvania, while they were yet comparatively rare in New-England, where they were introduced from "the mother country," in 1680. They must thus have been derived from a distinct importation, if not from a different stock. We incline to the latter conjecture, and for this reason: We know that the bees in the Middle States were free from the ravages of the bee moth till about the year 1805, and that this pest came thither from New-England. How long the insect existed there, before it became so devastating as to attract the notice of bee-keepers, is not known; but its progress south and west is traceable, and establishes the fact that it was a stranger south of the Hudson. Though not noticed early, it was doubtless imported with the first bees carried to New-England, for it is a fact that importations of Italian bees, whether made from Italy direct, or from Germany, always bring with them the moth or the miller, or both. This we believe is invariably the case. We are credibly informed that the trunk and wardrobe of Herman, who accompanied the stocks imported by Mr. Parsons, of Flushing, were thus infected; and observation shows that it is so common an occurrence that it may be regarded as invariably true. It follows, we conceive, that the bees of Pennsylvania and the Middle States came from a country where the bee-moth did not exist. That country, and the only country in Europe thus free and having early communication with the New World, is Sweden; and the Swedes and Finns had settlements in Pennsylvania and Delaware as early as 1627. Mead was their favorite beverage; and they would certainly be likely to carry with them in their emigration, the means of supplying themselves with it, and would thus introduce a bee *not troubled with the moth*. *They* could do this, and emigrants from no other country could; for the bee-moth was not known in Sweden till within the last twenty years—the desire to possess the Italian bee having carried that baneful pest thither also.

Notice to Bee-Keepers.

The time for holding the National Bee-Keepers' Convention at Indianapolis, Ind., has been changed from August 10th and 11th to December 21st and 22d, 1870.

A. F. Moon,
President Michigan Bee-Keepers' Association.

CORRESPONDENCE OF THE BEE JOURNAL.

PELEE ISLAND, ONTARIO, June 21, 1870.—The season here has been very favorable for bees—the weather generally such that they could fly. Brooding has been rapid, and swarming early. My first swarm came May 29th. I have just examined it and found all the frames full, except one, and a number of queen cells capped preparatory to swarming. Although white clover is very abundant, they are storing but little honey in boxes. I would like less swarming and more honey.

A man, three miles from here, caught a stray swarm last season, which evidently came from the woods, but showed unmistakable signs of having crossed with my Italian drones. He put it in a goods box, twelve by fourteen inches, and three feet high, which they filled and swarmed this spring before my best Italian colony in a frame hive, and in a week after swarmed again. I leave the fact without any comment.—T. SMITH.

MINNESOTA CITY, June 16.—Bees are doing very well here at present, and are at work in top boxes. Some Italian stocks have swarmed five times. If everything runs smooth, and we do not have any drouth to cut off our pasture, we shall get a good yield of honey. I will keep a record of all the honey obtained this season, and wish all bee-keepers would do the same, and report next fall through the American Bee Journal.—W. ROWLEY.

PORT CLINTON, OHIO, June 16.—Bees are doing well here. Swarming and storing honey in boxes.—P. S. VAN RENSSELAER.

OTTUMWA, IOWA, June 19.—Mr. Walker, who is working for me, changed a colony of bees that had been in one hive twenty-one years. The comb was very thick and heavy on the edges; but where the brood was the cells were apparently as large as any in new comb. What do you think of that?—G. B. OLNEY.

NORWALK, OHIO, June 22.—Bees are doing splendid here this summer, have mostly swarmed, and are storing honey very fast.—C. H. HOYT.

BINGHAMPTON, N. Y., June 22.—I find the American Bee Journal very interesting and instructive. Bees are doing very well in this section this spring. Swarming commenced early. The first swarm of Italians issued on the 25th of May. All populous stocks are working in boxes, and if the season continues favorable there will be a large yield of honey.—J. P. MOORE.

BLOOMFIELD, ONTARIO, June 22.—My bees wintered finely in the cellar described on page 76, Vol. V, of the Bee Journal. I have forty-five old stocks—black and hybrids, and have had six natural swarms. Bees are storing honey rapidly from white clover. Some colonies have stored fifteen to twenty pounds in boxes.—G. CORK.

AMESBURG, MASS., June 22.—The bees are doing finely this season in these parts; that is, such as were wintered well. We have had plenty of rain to keep the white clover blooming; and I have one-fourth of an acre of Alsike clover this season, which the bees like well. I shall have some boxes of honey to take off this week. Success to the American Bee Journal.—A. GREEN.

MAHOMET, ILLS., June 22.—Bee-keeping is progressing rapidly in this country. The Langstroth hive is in use with us, and find it far ahead of any other hive. Bees are doing finely here this season. A great deal of swarming is done artificially with us.—J. B. CHERRY.

OWEN SOUND, ONTARIO, June 22.—Inclosed you will find two dollars, subscription to the American Bee Journal for another year. I would not do without it for twice its present price.—J. MILLER.

BLOOMFIELD, IOWA, June 23.—Bees in this vicinity have not done very well until within the last seven or eight days, and had got pretty nearly through with their last year's honey, but are now storing honey very rapidly. I know of only one natural swarm having issued yet, though I have had two issues which could hardly be called natural swarms. I removed the queen from one colony for the purpose of having queen cells constructed, and did not watch them quite close enough. I found, after the swarms issued, that there was a young queen with it, and one in the old hive. The other swarm came from a colony that had lost its queen unknown to me. This swarm had two young queens, and the old stock had one. We expect, if pasturage continues good for eight or ten days longer, to have some swarms, unless precautions be taken to prevent swarming.—J. P. FORTUNE.

CASTLE CREEK, N. Y., June 25.—Before I had the Bee Journal I would not, for any price, open a hive with bees in it; and did not know the use of the movable comb hive; in fact, I knew nothing about bees. I now have thirty stocks, eight of them Italianized, and shall have them all changed to the "golden bands" by fall. I have one hive with twelve 5-lb. boxes in it, all full, and nearly every cell sealed. They will be ready for market in two days. The white clover season is not more than half gone yet. Who can beat that for honey in sixteen days? I was obliged to make a honey slinger to empty combs for my young queens to lay in this week. I have five hives from which I had taken their queen, and given them young Italian queens too young yet to commence laying; and as fast as the brood hatched the cells were filled with honey, leaving no chance to deposit eggs. But I have remedies at hand for that now. Success to the American Bee Journal and all its readers.—C. L. FRENCH.

ATCHISON, KANSAS, June 26.—Bees are doing better here this year, so far, than I have known for some years.—J. BELZ.

PERU, OHIO, June 28.—Bees are doing well here. Mine have had the swarming mania, but it is about over now. I never saw bees work on red clover before, as they do to-day—much more than on white clover. The Alsike is their "hobby."—F. F. NUNN.

CINCINNATI, OHIO, June 28.—As soon as I can find time, I shall try to answer to the satisfaction of some of our friends the two questions—"*Can bees be kept in cities?*" and "*Are bees profitable?*" I have taken from my twenty hives of bees already over twelve hundred (1200) pounds of honey, partly machine strained and partly in combs in small frames, and my hives are full now.—C. F. MUTH.

ATHENS, OHIO, June 29.—No end to bees and honey this season. *Natives beat* the Italians all to smash!—J. W. BAYARD.

ANNAWAN, ILLS., June 29.—The weather is extremely hot. Bees are gathering a large amount of honey, and swarming but little.—W. TROYER.

RICHMOND, OHIO, June 29.—Bees are doing very well in this part of the country. They have swarmed very extensively, and have stored a large amount of honey. I have several hundred pounds of box honey ready for market, which I can sell at thirty-five cents per pound on hauling it ten miles. My best wishes for the American Bee Journal and its success. I think it the best of its class in the United States.—J. W. TAYLOR.

BROAD RUN STATION, VA., June 29.—My bees are doing splendidly, and I hope to reap a good profit from them this year, if the weather only keeps *seasonable*.—H. WHITE.

CLIFTON, TENN., June 29.—Enclosed find two dollars for the sixth volume of the American Bee Journal; as I am a new beginner in bee-culture (on the new system) I cannot well do without the valuable information obtained by its perusal. About three months of the best part of the season has been lost to bees here, as they gathered no honey till about the 20th of this month. Previous to that time there was not more than one swarm from one hundred colonies. Several stocks starved during May and June, caused by many blossoms being killed by the late frosts; and others afforded no honey.—C. WEEKS.

PLEASANT HILL, KY., July 1.—The May number of the American Bee Journal, from some unknown cause, has never come to hand. Please send me a copy. I felt as much disappointed at its non-appearance as a hungry steed tied to an empty manger. It seems to be as necessary an adjunct to the apiarian as fertilizers are to the horticulturist, and its perpetuity has become very desirable. Present indications seem to favor that happy result.—B. B. DUNLAVY.

LIGONIER, PA., July 4.—The bee business has been an uphill one here the past two years, but the present is one of the best I ever saw for swarming and gathering honey.—W. ASHCOM.

LEXINGTON, KY., July 7.—I have obtained from eighty stocks of bees four thousand (4,000) pounds of surplus honey, this season, making an average of about fifty pounds. Don't that do pretty well?—D. BERBANK.

BATAVIA, ILLS., July 8.—The season, thus far, has been poor for swarming, in this section, on account of the dry weather. We have had no rain since April until this week. The honey season is past. My boxes will be only about half filled, and the season will be a poor one in this section.—S. WAY.

LIMA, OHIO, July 11.—Bees have been doing finely since June 10th, when we had several good showers of rain. Previous to that it was extremely dry; no rain to do any good for seven weeks. But since June 10th the bees have filled their hives to overflowing, and are filling surplus boxes. Last week I put my honey machine at work, and emptied out of the combs a lot of as nice honey as any one would wish to see (as well as eat). I use one of J. L. Peabody's machines, and it works complete, coming fully up to my expectations. It is so simple that there is no liability to get out of repair. With ordinary care it will last a lifetime, and pay for itself every year three or four fold, with say fifty hives of bees. All that is wanted for every bee-keeper to get value received, in both honey and bees, is to subscribe for the American Bee Journal.—S. SANFORD.

After giving the above encouraging report from Dr. Sanford, we think we cannot well do otherwise, in accordance with the dictates of strict impartiality, than insert the following lugubrious letter from one who seems to have been grievously disappointed and become thoroughly disgusted with bee-keeping, or *attempted* bee-keeping rather, for he evidently could not succeed in *keeping* bees. How he managed to come out so miserably "at the little end of the horn," is probably past finding out, unless he will favor us with a detailed account of his mode of operating, which we should be pleased to receive for publication. Certainly he read the Bee Journal to little purpose during the short time he received it, and it is wise in him to abandon bee-culture, though it may be hard to find any other pursuit to suit him better, if he is not conscious of the true cause of his failure in this. Much obliged for the payment of the balance due, in view of which he ought certainly have better "luck" hereafter; which we most cordially wish him.

ROCHESTER, WIS., July 11.—I wish to pay for the Bee Journal sent to me at Warren, Ills., to date, and have it stopped. I have lived on written and pictured sweetness long enough. Since I began taking the Journal I have run out two lots of bees, and have on hand sixty dollars' worth of useless hives and a very small lot of patience with you or anybody else on the bee question. I send enclosed three dollars, which I think will pay up; and if you knew my experience, circumstances, and feelings, you would be sublimely thankful to get it. Whenever I get time to destroy another lot of bees, or money to buy half a dozen patent hives that will draw the honey from the flowers without bees, I will renew my subscription. Until then I may wait in blissful ignorance of the great inventions and discoveries in bee-culture.—N. WOODWORTH.

BRANDYWINE HUNDRED, DEL., July 12.—Our bees have swarmed more than usual this season. They do not seem to have much surplus honey. I am so situated that I have to be away in the swarming season, and the swarms are taken by the women folks, except in some cases where they happen to get a little ahead and take French leave.—G. W. HARRIETT.

HUBBARD, OHIO, July 13.—It is a good season for bees in this section, where there is a good deal of white clover, and the bees work on it very lively. One of my stocks (an Italian), though in a large hive, with plenty of room, was determined to swarm. The swarm came out four different days, but always went back. So I took out four frames—three of honey, and one of brood with several queen cells on it; cut out all the queen cells but one; put these frames with all the bees on into an empty hive, moved the old hive off of its stand and set the new one in place. I could not conveniently cut out the remaining queen cells, as the combs were not all straight on the frames. In a few days both the old and the new hive swarmed. I took away the queens and returned the bees, but they came out again the next day; and several days after, one morning, I found *ten* dead queens in front of the old hive, and at another time *two*. I caught five queens one day from two swarms, and at other times killed at least six, and cut out four or five cells. They must have had at least *twenty-five* young queens raising. I was sorry I could not make use of them, as they were very good Italians.—J. WINFIELD.

TIVERTON, CANADA, July 14.—I am satisfied that I have come to a better locality for bee-keeping than Lancaster. My bees are doing wonders here; and so they may, for I never saw more white clover than we have here, and as it is natural to the soil, we shall have plenty of it till frost comes.

I met rather a singular thing the other day—namely, two queens in one hive. Of course, young queens are often found together in one hive; but it was the mother and daughter that I found together on the same frame. The way it occurred was this: I divided a hive. In my operation I discovered a queen cell sealed over, but I failed to see the queen; so I happened to put the queen and queen cell into the same box, and in about ten days afterwards, when I

went to destroy all the queen cells but one, in the box which I supposed contained them, I discovered the mother and daughter on the same comb. I never met the like before, for in such circumstances the old queen generally destroys all the queen cells.—J. ANDERSON.

BYRON, MICHIGAN.—Enclosed please find two dollars for the American Bee Journal for another year. As for me, it is honey in the comb, and I cannot do without it, so hurrah for the Bee Journal. Now, about my bees. Last fall I had sixty-seven colonies. Intending to winter most of them, some twenty were put in a special depository, some were placed in a bed-room, and the residue were left on their summer stands. The result was that sixty-two of the sixty-seven, during the winter and spring, went "where the woodbine twineth," up, up, up. All, I believe, died with cholera, caused by using thin or watery honey, as with us the last was a very wet season. But, as I am a full-blooded Yank from old Connecticut, I pitched in on a small scale (Gallup like) and bought sixteen colonies in old box-hives, and now (July 11) have had forty swarms from eighteen old stocks (three have not as yet swarmed), allowing them to do as most inclined—that is, doing their own swarming; and all of them are doing a smashing business. As I have not a honey-slinger some of my early swarms have gathered and stored at least a wheelbarrow load of the most luscious of all sweets, which, in part, was extracted from the pink blossoms of Alsike. I have eighteen acres of this clover just over the fence enclosing my apiary, and, with last spring's sowing, have forty acres on the ground. I am thoroughly convinced the Alsike will be the staple clover for pasturage, hay, and all soiling purposes, as it does not heave by the frosts of winter and spring. My Alsike will do to cut about the 20th of this month (July), and all who have examined it think it will produce six bushels clear seed to the acre.

As to the Italian bees, I am confident of their superior qualifications in honey gathering, as also in sending out larger and earlier swarms. Besides their just symmetry and beauty of color, they are more docile and less inclined to sting. As to hybrids, all I can say in their favor, is they are great workers, and perhaps as prolific, but notorious thieves among the honest class of *people*. Their natural propensity is to be "*boss*," so that when they begin to give orders one might as well begin to "skedaddle."

I intend to keep none but pure Italians, and am Italianizing my apiary and some others.

And now, Mr. Editor, if you see fit to transfer any part or the whole of this to the Journal, you are at liberty to do so; but if not, throw it among your waste paper, and I shall remain as ever your obedient servant, and well-wisher to the American Bee Journal. So again, I say hurrah for the man who is doing most for the promotion of bee-culture.—O. E. WOLCOTT.

[For the American Bee Journal]

Feeding bees building comb.—Will it pay?—An experiment.

One month ago, or about the 12th of June, I hived a swarm of bees in an empty Casket hive, to test if it would pay to feed. The swarm was only of medium size. The queen unfortunately was a cripple and died. But I had taken the precaution to give them a sealed queen cell. So for a week, or until the young queen came out to be fertilized, they did not fly much, and only used half a pound of sugar from the feeder. I then fed the 8½ lbs. of coffee sugar, through the glass fruit jar vacuum feeder, in the proportion of half a pound of sugar to two pounds of water. They rapidly filled up with comb, although not any of my other colonies seemed to be storing any above their daily wants. (We have had here a long drouth all through the spring, which still continues.) Then the basswood came into blossom, and they have done well. To day they weigh, (over and above the Casket,) comb and honey, thirty pounds.—The Harrison or Novice bee-feeders are all right to feed late in the fall or in winter, as you have to use four or five pounds of sugar to one of water, but would be useless as a summer feeder, as the feed has to be concentrated; and feeding such concentrated feed to bees, is about as profitable as feeding a workhorse on Kingsford's Corn Starch or the best Arrow Root.

The readers can judge for themselves, taking into consideration the loss of queen, and the drought, as well as the smallness of the swarm, and the present weight of comb and honey, whether the feeding pays.

JOHN M. PRICE.

Buffalo Grove, Iowa, July 12, 1870.

[For the American Bee Journal.]

Improvement of Stock.

In the AMERICAN BEE JOURNAL for July, I notice inquiries by Alonzo Barnard, that are worthy of consideration. I have had some experience in changing the locality of bees, and found it highly beneficial. I have known a swarm from the woods put in a yard containing eight or ten stocks of bees, and in a few years all the bees in the yard would be the progeny of the wild swarm. I advise to raise stock only from the best colonies, and those having the most prolific queens; keeping all others in non-swarming hives, storing honey. Thus native bees may be very materially improved, as may the Italians likewise: and although bee stock has been greatly improved within a few years, there is still much that may be done to advantage in that line.

Now, while I urge the improvement in stock, allow me to call attention to improved supplies of bee forage. Fruit trees furnish food for man and bees, so also clover and buckwheat. But clover is the honey staple—honey from it bringing the highest price in market. I have found the Alsike or Swedish clover much superior to the white, in quality and quantity of the honey produced, besides furnishing better fodder than either the red clover or the white. This clover should be so managed as to have it come in blossom in succession, some early and some late, by sowing in early places, or cutting or feeding back. *Ten times the amount of honey now raised in the States may be obtained*, if the pursuit of bee-culture receive the attention it deserves.

The season in this section of country has been quite unfavorable for bees thus far—moderate swarming and honey supplies short.

JOEL CURTIS.

Raleigh, N. C., July 18, 1870.

Handling Bees.

Most people are deterred from keeping bees on account of their stings. All persons who have a little nerve, can handle bees. Never show fight or the "white feather" while operating with them, and there need be no danger of getting stung.

Bees dislike bad breaths, especially whiskey breaths. Therefore if your breath is bad, be very careful not to breathe on them. The ladies generally have better breaths and more patience than men, and consequently are more successful in managing bees. By blowing a little smoke from rotten wood or cotten rags into a hive, it will frighten the bees and cause them at once to fill themselves with honey, thereby making them as harmless as flies. Tobacco smoke is not good to use in quieting bees, as it stupefies them so that they cannot defend their hive from robbers; and again, whenever tobacco smoke is used they will be on the lookout for revenge for several days afterwards.

By protecting the face and hands, the most timid can handle bees with impunity. A head dress can be made very easily out of a veil, by making a bag of it and putting it over a hat, and gathering it so that it can be tied around the collar. It don't matter if the veil touches the face, as a bee will not sting through it. As a general thing, bees do not sting the hands, but gloves may be worn to protect them if necessary. —L. C. WAITE, in Colman's "*Rural World.*"

Alsike Clover.

The quantity of seed required per acre is five pounds, when sown c'ear; and about half that amount when sown with timothy.

It should be sown in the spring with wheat or barley, in precisely the same manner as red clover.

When allowed to ripen its seed, it cannot be cut more than once in a season, as it bears its seed with the first blossom in each year; but if it is grown for a hay crop, it can be cut again in the fall, and will yield a nice lot of fine hay for calves and sheep.

Its effect on the ground is nearly the same as that of ordinary red clover, and perhaps is still more paralleled by the small white clover.

The most prominent advantages of the Alsike clover over the common red variety, are that it does not heave out of the ground in spring with the frost, and consequently it can be sown on damp ground with good results. It makes finer and better hay, for the stalks are not so thick and woody as those of red clover. It yields about one third more seed to the acre, and when threshed the hay makes excellent feed for calves and sheep. Among its disadvantages may be reckoned its rank growth, rendering it liable to be lodged.—*Canada Farmer.*

Lord Brougham estimated that a bee can fly over ninety miles an hour, or one and a half miles in a minute.

Paint for Hives.

Cheaper and more durable than ordinary paint,

Three parts slacked lime,
Two parts sifted wood ashes,
One part fine sand.

Mix the whole intimately, and sift the mixture through a fine sieve. Then add as much boiled linseed oil as will make the mass of a proper consistence to be applied with a tolerably stiff paint brush. The more perfectly the ingredients are mixed, the more durable the paint will be; and the paint should be frequently stirred when using, to prevent the sand from settling to the bottom. Two coats are sufficient. The first is put on thin, and will be mostly absorbed by the wood. When this is pretty dry the second coat is to be put on as thick as it can be properly spread with the brush. This paint is of a grey color when dry.

To Prevent the Gumming of Frames.

Mr. THOMAS LEE, in the *Canada Farmer*, thus describes his method of preventing bees from fastening frames with propolis:—

"Take pieces of wire of about the thickness of a stout darning needle, and cut them about an inch long. If you have wooden bearings in your hive cut them down three-eighths of an inch, drive in one of your wires in the centre, where each frame hangs, or you can put two under each frame, if you like, though I never use more than one myself. When you put in your frames, press them gently down on the wires, and all will be right, as they cannot move. Drive your wires down in the wooden bearing to within three-eighths of an inch for the frames to rest on, and it gives the bees room to crawl under and all around the end of the frames."

MR. EDITOR:—To ease the minds of some folks and obviate further trouble, please insert in the Journal the annexed certificate, of which I enclose the original.

ADAM GRIMM.

Jefferson, July, 8, 1870.

To whom it may concern!

Jefferson, Wis., June 29, 1870.

We, the undersigned citizens of Wisconsin, hereby certify that we are intimately acquainted with Mr. ADAM GRIMM, of Jefferson, Wis., and that he the said Adam Grimm is, to the best of our knowledge and belief, a thoroughly reliable and trustworthy man; and will, we think, send good and pure Italian queens, if ordered.

JACKSON JONES,
Clerk of County Board of Supervisors.
A. SCHEUBER,
Register of Deeds.

His note is good for $20,000.

E. M. MAHON,
Cashier National Bank of Jefferson.

PRICES CURRENT FOR 1870,

OF

ITALIAN QUEEN BEES,

AT THE APICULTURAL INSTITUTE, IN

ROVEREDO, CANTON OF GRISONS,

SWITZERLAND.

1. For an Italian queen bee, accompanied by a sufficient number of workers, and provisions for a thirty days' journey, (packing included, and freight to Bremen, Hamburg, Havre or Ostend prepaid,) if sent in April, 13 francs; in May, 12 francs; in June, 11 francs; in July, 10 francs; in August, 9 francs; in September, 8 francs; and in October, 7 francs.

2. These prices are for choice, select queens; and all queens not of marked fertility, beauty and size, will be sold in the period from June 1st to October 1st, at half the prices above stated.

3. Queens will be sent only in parcels of eight, twelve, or twenty-four.

4. Orders for twenty-four queens, in one parcel, will be entitled to a deduction of ten per cent. From the above prices.

5. When desired, freight from Bremen to New York, inclusive of entrance duties, will be prepaid; but in such case, one franc additional will be charged for each queen sent.

6. The price will be regulated by the day the queens are sent off from here for shipment.

7. The price must accompany the order.

8. Orders may be sent either direct to the undersigned, or to his authorized agent, at Bremerhaven—Mr. George Dauwes.

9. Queens sent go at the risk of the party ordering them. Careful packing guaranteed.

10. Postage on letters and remittances to be prepaid.

11. Persons ordering queens will be notified in advance of the time when they will be sent from Roveredo.

12. As the Italian bee alone is native in this valley (Adige,) is of special beauty, and is cultivated with great skill and success, none but pure queens can be sent; and customers may be confidently assured that every order, even the most extensive, can be filled within ten days after it is received here, as the number of colonies devoted to queen raising is very large.

It will be proper for persons ordering queens to arrange with an agent, in New York or Baltimore, to receive and forward the bees immediately on their arrival there, that they be not detained in the custom house.

EDWARD UHLE, Director,

Roveredo, Canton Grisons, Italian Switzerland.

February, 1870.

Italian Queen Bees.

I will sell Italian Queen Bees the present season, at the following prices.

For one queen sent in June by mail, $2.50.

After July 1st, three (3) queens for $7; five for $10.

All queens warranted pure and to be PROLIFIC, when proved otherwise, the money will be refunded, or other queens sent.

Safe arrival by mail or express, guaranteed; and satisfaction given in all cases.

One of my new style Langstroth Hives, with 36 three pound surplus boxes complete, $9. For a full description of this hive, see American Bee Journal for July, page 8.

I shall have for sale this fall 20 stocks of ITALIAN BEES, which will contain my CHOICEST ITALIAN QUEENS. These Bees are in good Langstroth hives, and fourteen three pound glass boxes will be shipped with each hive, price $20.

Orders can be sent in now, the money to be sent before October 1st, as the weather will be cool enough at that time to ship the bees.

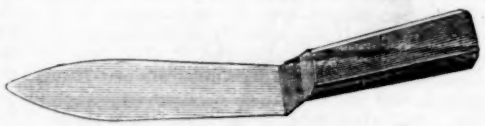
Address,

H. ALLEY,

Wenham, Essex Co., Mass.

August, 1870.

HONEY KNIVES.



The above are made expressly for uncapping honey comb, and are made of the finest steel.

Price, if sent by Express, $1.00 each.
" by Mail, pr paid, 1.25 "

Two of these Knives are furnished gratis with each PEABODY HONEY EXTRACTOR, when ordered at the regular advertised prices.

Please address

J. L. PEABODY,

August, 1870. VIRDEN, ILLS.

ITALIAN QUEEN BEES.

A limited number, of UNDOUBTED PURITY, for those ordering first.

Send for circular and price list for 1870.

L. L. LANGSTROTH & SON,

Oxford, Butler County, Ohio.

May, 1870—tf.